LABORATORY OPERATIONS

Metrology Engineer

JD NUMBER	REVISION	FLSA STATUS
JD-GEN-05	Rev 1 · 2026-06-21	Exempt
REPORTS TO	**PAY GRADE**	**LOCATION**
Laboratory Manager	S1	Phoenix, AZ — occasional travel to customer sites and NMI/accreditation body interactions
SUPERVISES		
None (technical mentor to Senior and Lead Calibration Technicians)		

POSITION SUMMARY

The Metrology Engineer is a technical specialist role positioned to support FCI's scope expansion, measurement uncertainty program, and long-term calibration capability development. This is a scale role created to support FCI's growth into higher-complexity measurement disciplines, primary-level uncertainty work, and new customer market segments requiring advanced metrological expertise. The Metrology Engineer collaborates closely with the Laboratory Manager to develop and validate new calibration methods, author uncertainty budgets conforming to JCGM 100:2008 (GUM), and serve as the internal technical authority for difficult or novel measurement challenges not fully addressed by existing procedures.

ISO/IEC 17025:2017 Alignment	Clause 6.2 — Technical competency framework design and personnel qualification criteria; Clause 6.4 — Equipment characterization and reference standard performance evaluation; Clause 6.5 — Metrological traceability analysis and traceability chain documentation; Clause 7.6 — Measurement uncertainty evaluation (primary GUM and Monte Carlo method development); Clause 7.2 — Method selection, development, and validation; Clause 8.6 — Continual improvement via technical innovation.
FCI Quality Program	Authors and technically validates calibration procedures submitted for document control approval; performs technical review of uncertainty budgets authored by Senior Calibration Technicians; supports the QA Manager during proficiency testing analysis, identifying systematic bias or expanded uncertainty coverage concerns; participates in internal audits as a technical subject-matter expert for Clause 6 and Clause 7 findings.

ESSENTIAL DUTIES & RESPONSIBILITIES

- Develop and validate new calibration methods and procedures for disciplines proposed for addition to FCI's accredited scope; prepare the technical justification packages (uncertainty budget, equipment characterization data, inter-laboratory comparison data) required for IAS scope expansion submissions.
- Author and maintain FCI's measurement uncertainty budgets for all accredited disciplines, applying GUM (JCGM 100:2008) methodology and, where required by the technical program, Monte Carlo simulation (JCGM 101:2008).
- Evaluate the metrological performance of candidate reference standards prior to capital expenditure approval; develop acceptance test protocols and document CMC capability determinations.

- Analyze proficiency testing (PT) and inter-laboratory comparison results; perform statistical evaluation of En scores, z-scores, and bias estimates; recommend corrective or preventive actions to the Laboratory Manager and QA Manager.
- Provide technical consultation to the Laboratory Manager and authorized signatories for complex customer calibration requirements, novel instrument types, and out-of-standard measurement requests.
- Author or co-author technical papers, internal training materials, and discipline-specific competency standards to support the T1–T4 technician qualification ladder.
- Evaluate and characterize laboratory environmental effects (temperature coefficient, humidity sensitivity, vibration) on reference standards and measurement results; recommend environmental control improvements.
- Interface with NMI partners, NIST, and accreditation body technical assessors on matters of measurement traceability, CMC claim justification, and scope of accreditation technical content.
- Support the Laboratory Manager in performing expanded uncertainty reviews on certificates for complex or high-risk customer applications where Decision Rule application per ILAC G8 requires engineering judgment.
- Identify technology and discipline gaps relative to FCI's target market segments; prepare capability roadmap recommendations for COO and Laboratory Manager review.

REQUIRED QUALIFICATIONS

- Bachelor's degree in Physics, Electrical Engineering, Mechanical Engineering, or Metrology; Master's degree strongly preferred.
- Minimum 5 years of metrology or calibration engineering experience in an ISO/IEC 17025-accredited laboratory, NMI, or equivalent high-accuracy measurement environment.
- Demonstrated expertise in GUM-based measurement uncertainty evaluation across at least two calibration disciplines; experience with Monte Carlo uncertainty methods is highly desirable.
- Proficiency in metrological traceability chain analysis and CMC claim documentation.
- Experience with statistical analysis tools (e.g., Python, R, Matlab, or MathCad) for uncertainty and regression calculations.
- Familiarity with JCGM 100:2008, JCGM 101:2008, ILAC P14, ILAC G8, and ANSI/NCSL Z540.3-2006 as applicable to calibration laboratory operations.
- Strong technical writing skills with the ability to author procedures, uncertainty budgets, and scope expansion packages at a level suitable for AB technical assessor review.

PREFERRED QUALIFICATIONS

- U.S. military PMEL or TMDE journeyman/master technician experience with hands-on uncertainty work — strongly preferred.
- Master's degree or higher in Metrology, Physics, or Electrical Engineering.
- Experience with NIST or NMI-level traceability validation and inter-laboratory comparison program management.
- ASQ Certified Calibration Technician (CCT), NCSL International Certified Metrologist (CM), or equivalent credentialing.
- Experience with Fluke 5720A/5522A, Keysight 3458A, or equivalent primary-level electrical reference standards.
- Published technical work or conference presentations in measurement science, calibration, or metrology.

PHYSICAL DEMANDS & WORK ENVIRONMENT

Physical demands	Primarily bench-level laboratory and desk work. Must be able to handle precision measurement instrumentation with fine motor control. Ability to lift up to 40 lb for equipment positioning. Prolonged use of computer workstations for data analysis and technical writing. Color vision adequate for electronic component and wiring identification.
Work environment	Climate-controlled metrology laboratory (20±2°C, 40±10% RH in primary calibration areas). Work involves energized precision electrical, RF, and mechanical measurement systems. ESD precautions and safety glasses required in active calibration areas. Occasional travel to NMI facilities, customer sites, or accreditation body assessment locations.

SCOPE OF DUTIES

This position description is not exhaustive. The employee is expected to perform other duties and responsibilities as required to support Field Calibrations, Inc.'s operations, its accreditation, and its customers. Responsibilities and duties will evolve based on acquired skills, completed training, business needs, and opportunities identified by leadership. This position offers growth opportunities within Field Calibrations, Inc. for employees who demonstrate initiative, reliability, and continued professional development. Management retains the right to add, remove, or modify duties and responsibilities at any time to support the operational, quality, and strategic goals of Field Calibrations, Inc.

EQUAL EMPLOYMENT OPPORTUNITY

Field Calibrations, Inc. is an equal opportunity employer. We do not discriminate on the basis of race, color, religion, national origin, sex, age, disability, veteran status, sexual orientation, gender identity, or any other protected status.

VETERAN HIRING PREFERENCE

Field Calibrations, Inc. observes a veteran hiring preference across all positions. Qualified veterans and transitioning service members are strongly encouraged to apply and will receive preferential consideration consistent with applicable state and federal law and FCI hiring policy.

APPLICANT ACKNOWLEDGMENT

By signing below, I confirm that I have read this job description and understand the duties, qualifications, and working conditions of this position.

Signature _____ Date _____

Printed name _____