

Matias Cruz

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SUMMARY

Radio Frequency Engineer and **RF assembly** specialist with more than six years of hands on experience supporting hardware integration, laboratory measurement, tuning, validation, troubleshooting, and prototype development. Builds coaxial and waveguide assemblies, integrates precision mechanical components, and validates circuits, amplifiers, filters, antennas, and **test fixtures**. Uses network analyzers, spectrum analyzers, signal generators, and power meters to characterize performance and isolate faults. Supports senior engineers with **RF signal processing** applications, structured **root cause analysis**, calibration control, and repeatable test documentation. Maintains safe, organized laboratory operations with accurate equipment records and configuration details. Active U.S. citizen with TS/SCI clearance and polygraph, prepared for sensitive on site engineering work in Columbia, Maryland.

EXPERIENCE

Radio Frequency Engineer, Prototype Hardware

February 2024 - Present

Patuxent RF Technologies

Columbia, Maryland

Leads RF assembly, integration, measurement, tuning, validation, and prototype support for receiver and transmitter hardware in a controlled laboratory. Partners with senior engineers during design reviews, fault isolation, and maturation of sensitive electronic systems while maintaining traceable records, calibration control, and safe work practices.

- Built receiver prototypes with coaxial and **waveguide** interfaces, achieving precise mechanical alignment for laboratory validation.
- Characterized **amplifiers**, filters, antennas, and RF paths using analyzers, generators, and **power meters** before reviews.
- Tuned **RF circuits** against performance targets, recording conditions and configurations for consistent prototype comparisons.
- Isolated gain, loss, frequency response, and signal quality faults across cables, fixtures, components, and interfaces.
- Prepared **test fixtures** and validation evidence, helping senior engineers assess prototype anomalies during design activities.
- Maintained calibration records, **assembly procedures**, safety controls, and test packages for repeatable laboratory work.

RF Test and Integration Specialist, Communications Prototypes

January 2022 - January 2024

Blue Ridge Microwave Labs

Hanover, Maryland

Supported communications prototype integration through RF assembly, bench measurement, tuning, troubleshooting, and controlled documentation. Developed stronger diagnostic judgment by connecting fixture condition, calibration status, assembly quality, and component behavior with reliable engineering conclusions.

- Integrated RF **subassemblies** and fixtures with coaxial and waveguide connections from controlled engineering drawings.
- Measured insertion loss, return loss, gain, and spectral behavior using network and **spectrum analyzers**.
- Established repeatable stimulus levels with calibrated **signal generators** and **power meters** during receiver testing.
- Tuned **filters** and **RF circuits** under engineering direction, documenting adjustments and final validation measurements.
- Investigated inconsistent results through fixture, connector, calibration, alignment, and component checks before escalation.
- Prepared test summaries, calibration records, and assembly documentation for follow on prototype evaluations.

RF Assembler, Laboratory Hardware

June 2020 - December 2021

Severn Electronics Laboratory

Laurel, Maryland

Performed supervised **RF assembly** and laboratory testing for components, cable interfaces, subassemblies, and bench fixtures. Built foundational expertise with measurement instruments, controlled work instructions, traceability records, calibration checks, and safe laboratory operations.

- Assembled **RF components**, cable interfaces, **subassemblies**, and bench fixtures from controlled work instructions.
- Installed coaxial connections and precision mechanical hardware for sensitive RF signal paths.
- Configured fixtures and recorded readings while supporting amplifier, filter, and antenna testing.
- Operated **network analyzers**, **spectrum analyzers**, signal generators, and power meters after laboratory qualification.
- Recorded observations, serial information, calibration status, and assembly details for engineering traceability.
- Verified instrument calibration and organized work areas before testing, supporting safe repeatable operations.

PROJECTS

Receiver Prototype Validation 📅 2024

A prototype behaved differently after assembly, prompting a structured review of interfaces, fixtures, calibration status, and signal paths. Network analyzer, spectrum analyzer, signal generator, and power meter readings supported repeatable validation before engineering review.

Waveguide Test Fixture Integration 📅 2023

A demanding fixture build brought coaxial and waveguide connections together with precision mechanical integration. Controlled assembly records and calibration data helped engineers reproduce measurements during later communications prototype evaluations.

LEADERSHIP & AWARDS

- Recognized by engineering teams for dependable RF troubleshooting and clear evidence during prototype reviews.
- Selected for continued laboratory responsibility involving calibration records, controlled documentation, and sensitive RF hardware.
- Trusted to support senior engineers with repeatable measurements, fixture preparation, and prototype validation activities.

EDUCATION

Associate of Applied Science in Electronics Engineering Technology

Howard Community College GPA: 3.5

2020
Columbia, Maryland

Coursework: RF circuits, electronics testing, signal processing, electronic instrumentation

CERTIFICATIONS

- Active TS/SCI with Polygraph Clearance 📅 2025
- Associate Electronics Engineering Technology Credential 📅 2020

TECHNICAL SKILLS

- **RF Measurement Instruments:** Network analyzers, Spectrum analyzers, Signal generators, Power meters
- **RF Hardware:** RF circuits, Amplifiers, Filters, Antennas
- **RF Interconnects:** Coax, Waveguide, Cable interfaces
- **RF Engineering:** Signal processing, Tuning, Validation
- **Assembly Integration:** RF components, Subassemblies, Test fixtures
- **Prototype Development:** Receiver hardware, Transmitter hardware, Communications prototypes
- **Test Methods:** Insertion loss, Return loss, Gain measurement
- **Troubleshooting:** Root cause analysis, Fault isolation, Performance diagnosis
- **Documentation Systems:** Test results, Assembly procedures, Validation reports
- **Calibration Control:** Calibration records, Instrument status, Measurement traceability
- **Laboratory Operations:** Laboratory safety, Work area organization, Controlled instructions
- **Mechanical Integration:** Precision alignment, Mechanical hardware, Fixture integration

SKILLS

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|------------------------|---------------|---------------|-----------------------|
| • RF signal processing | • RF circuits | • RF testing | • Root cause analysis |
| • RF assembly | • Amplifiers | • Tuning | • Calibration records |
| • Coax | • Filters | • Validation | • Laboratory safety |
| • Waveguide | • Antennas | • Prototyping | |

PROFESSIONAL AFFILIATIONS

- RF engineering laboratory teams, supporting shared test methods and reliable handoffs.
- Electronics engineering community, contributing practical assembly and measurement experience to prototype discussions.

LANGUAGES

- English (Native)
- Spanish (Proficient)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST