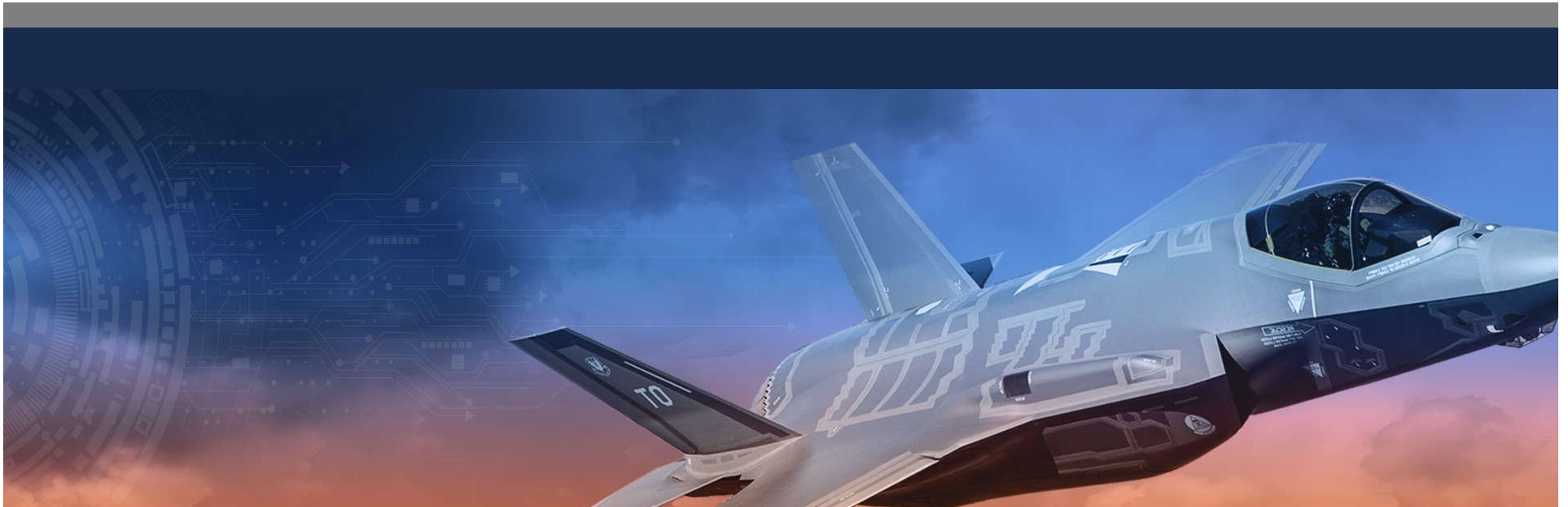


# TRM Microwave

## NHADEC Unmanned Systems Committee Meeting 06/20/18



Completing Your Ideas Since 1970



# TRM Microwave

- **TRM Microwave Specializes in Solving Complex RF/Microwave Signal Processing Challenges for our Customers by addressing:**
  - Customer's Unique Problems
  - Complex RF/Microwave Components
  - Subsystems for High-Performance Applications
  - Stringent Electrical, Mechanical, and Environmental Requirements
- **We are RF/Microwave Subject Matter Experts and have the Experience to Innovate Solutions**
- **We are a Design and Production Partner –An Extension of our Customers' Teams**
- **We are Vertically Integrated with; Engineering, Design, Manufacture, Test, and Support Capabilities**
- **We are a Certified Woman Owned Small Business Providing Custom Microwave Solutions for the Defense and Aerospace Industries since 1970**



# Core Competencies

## ➤ Custom and Catalog Products

### • Passive RF/Microwave Components – DC to 40 GHz

- Power Dividers
- Directional Couplers
- 90/180 Degree Hybrids
- Beam Forming Networks
- Experts in Merging Ferrite, Stripline, Microstrip, Coaxial and Airstrip™ Technologies to Create Innovative Designs

### • Highly Integrated, Broadband Packages specific for Severe Environments

### • High Power Passive RF/Microwave Components

- Directional Couplers to 20 kW
- Dividers/Combiners to 10 kW



## ➤ Custom Integrated Subsystems

## ➤ Exceptional Customer Support

# In-House Design, Fabrication and Test Capabilities

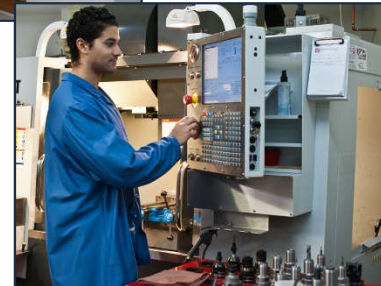
## ➤ Manufacturing Capabilities

- Surface Mount Assembly (SMT)
- Custom Automated Manufacturing Equipment
- PCB Shop
- Machine Shop
- Laser Machining



## ➤ Test Capabilities

- High Power testing to 8 GHz
- Infrared Imaging Validation
- Environmental Stress Testing
- Vibration
- Thermal Shock
- Thermal Cycle
- Gross Leak
- Local Certified Test Providers – vacuum, salt spray, mechanical shock and humidity testing



*Experience, Facilities and Resources to Execute with Low Risk*

# Applications

## ➤ **Electronic Warfare and Countermeasures**

- SIGINT (Signal Intelligence Gathering)
- ELINT (Electronic Signals Intelligence Gathering)
- COMINT (Communications Intelligence)
- ESM (Electronic Support Measures)

## ➤ **Satellite Components**

- LO Signal Distribution
- Antenna Array signal Distribution
- Flat-pack board mounted components (VHF through L-Band)

## ➤ **Airborne X-Band Radar**

- Array Signal Distribution
- Fixed Beamformers

## ➤ **IFF Beamformers (L-Band)**

## ➤ **Ground based Tracking Antenna Beamformers**

- VHF through X-Band

## ➤ **Unmanned Surveillance Aircraft**

- Antenna Feed components
- VHF through Ku-Band

## ➤ **Test Equipment**

## ➤ **Communications, HF, VHF,UHF**

## ➤ **FM Broadcast**

## ➤ **Jamming**

## ➤ **Radar, Ground Penetrating, Wind Profiling**

## ➤ **Amplifier Leveling, Monitoring**

## ➤ **Susceptibility Testing**

# Design Capability

## ➤ People

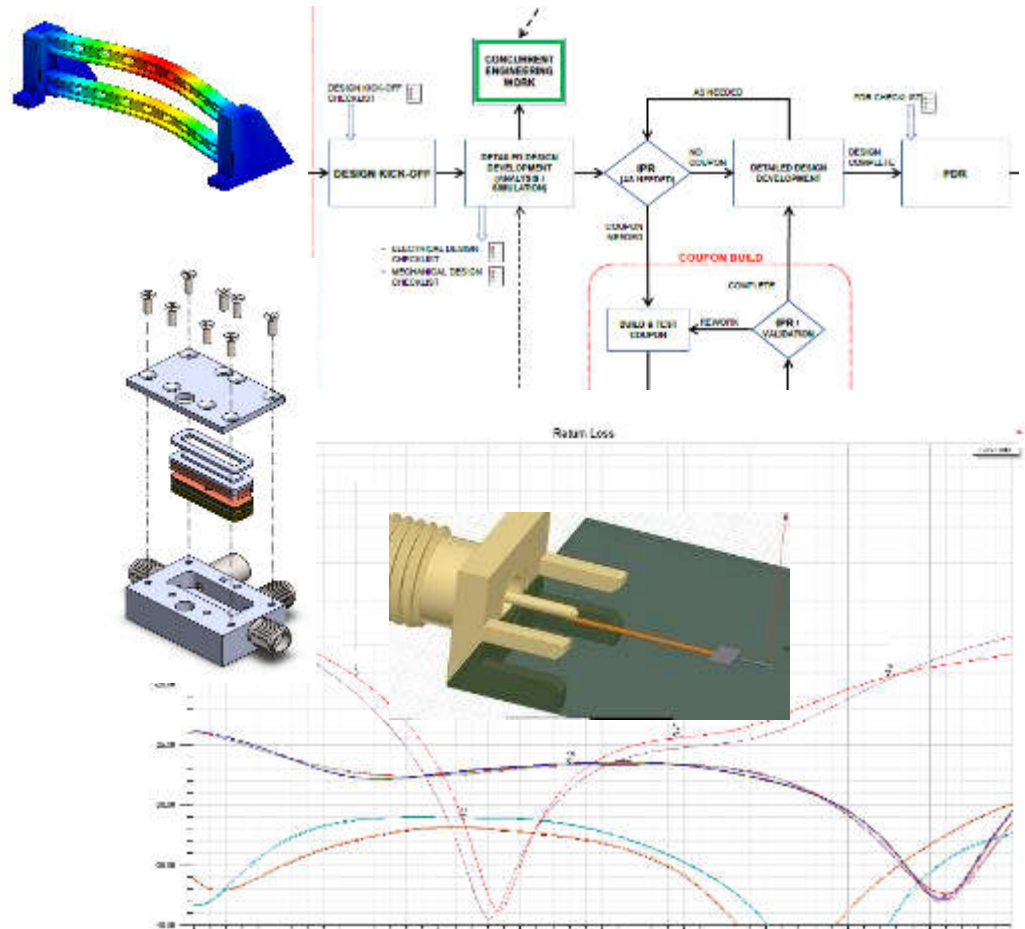
- Experienced Design Engineers
- Detail-Oriented Program Managers
- Quality & Manufacturing Engineering Support

## ➤ Tools

- Electrical and Mechanical Design
  - HFSS
  - Designer
  - SolidWorks 3D Design Modeling and Analysis
  - FEA Simulation

## ➤ Process

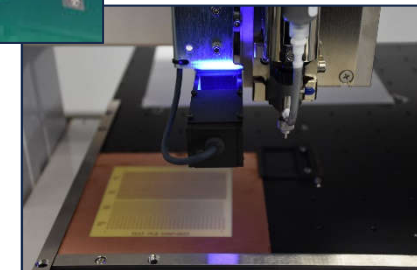
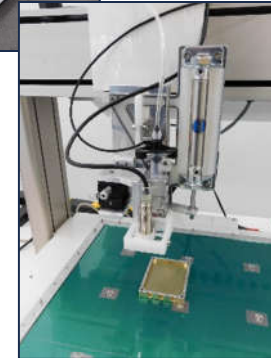
- Structured Design Approach
- Internal and External Milestones/Gates
- 100% Design Modeling
- Engineering Validation on All New Designs



# Manufacturing Technology Initiatives

## ➤ In-House PCB Capabilities

- Programmable Solder Paste Dispenser
- Solder Paste Screen Printing
- Automatic Pick and Place
- Programmable Reflow Oven
- Programmable Heated Platen Press for Improved Product Sealing
- Precision Stripline Press
- Custom Robotic Cover & Fastener Installation Station
- Job Order Barcode Capability
- Robotic Product Assembly
- Semi-Automatic Connector Installation
- Machine Process Connector Pre-tinning
- Integrated Optical Assembly Verification
- Programmable Epoxy Dispensing Robot



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# Contact Information



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