



**NuWaves**  
engineering

Trusted RF Solutions™



# High-End, DoD Military Electronics Manufacturer



**Contract Manufacturing:** Circuit Card Assembly and Test Service



## At a Glance

- AS9100D/ISO 9001 Certified
- Circuit Card Assembly
- High Reliability Products
- High Volume Throughput
- Mechanical Assembly
- In-House Machine Shop
- DFAR Compliant
- Engineering Support Team
- Flexible
- Quick Reaction
- IPC Certified Team
- ITAR Compliant
- Quick-Turn Prototyping
- Risk Mitigation
- Testing of Electronic Assemblies
- Wiring Harness Assembly
- Rapid Prototyping
- Low Rate Initial Production (LRIP)



**Extensive In-House  
Manufacturing  
Capabilities**



**Circuit Card and  
Top Level Assembly  
Services**



**Machine Shop on  
Site for Custom  
Housing Builds**

### Highly Specialized Contract Manufacturing of Circuit Card Assembly and Electronic Mechanical Assembly

NuWaves is uniquely positioned to execute your contract manufacturing needs with quick reaction. Along with proper equipment, it is also paramount to strictly adhere to applicable engineering specifications in the production process. Production technicians follow all requirements in the technical data package, including quality control documentation necessary to assure the product is produced in accordance with the stated requirements and guidelines.

## Our Markets



**UAV and Airborne**



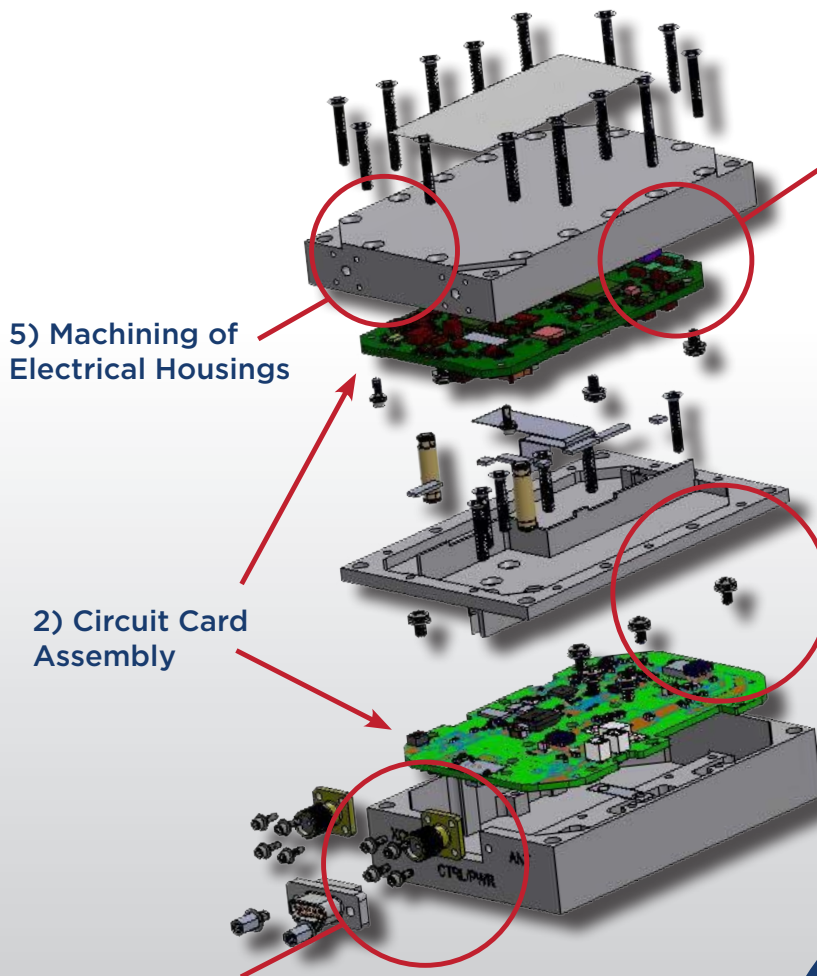
**Shipboard and Ground Stations**



**High-End Commercial & Industrial**

## Where We Fit In

From start to finish—or anywhere in-between—our contract manufacturing team has the ability to assist with your project.



### 3) Testing of circuit card assembly

- Continuity Check
- Functional Test
- PAT Testing

### 1) Parts Sourcing

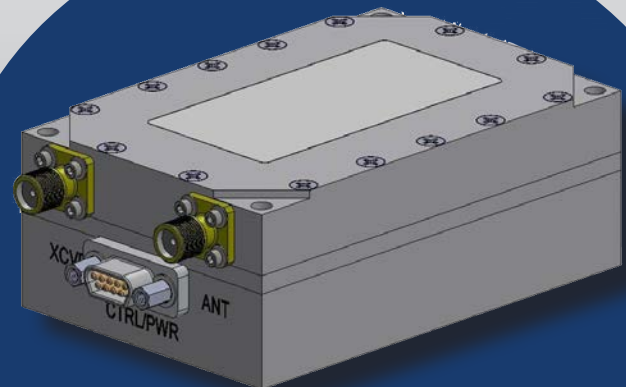
- Identify Alternative Parts
- Inventory Management
- Part Sourcing/Risk Analysis

Part Information		Part Lifecycle Risk		RoHS Status		RoHS	Mul
Uploaded MPN	Range Y-to-EOL Maximum						
95170540							
CWR09HC226KB	6.4					Risk	Number of other
AQ125M101JAJME		No	(2011/65/EU)			Down	
JANTXIN4148UR-1	6.0	No	(2011/65/EU)			High Risk	2
TSW-105-07-G-D	6.4	No	(2011/65/EU)			High Risk	1
ESQ-120-33-G-D	6.4		(2011/65/EU, 2015/863)			Risk	5
DD78M4B800C			(2011/65/EU, 2015/863)			Risk	19
MMBT2222ALTIG	8.6					Risk	0
M55342K03B1K00R	6.9		(2011/65/EU, 2015/863)			Down	
CRCW120627K0INEA	6.9		(2011/65/EU, 2015/863)			Risk	14
CRCW12064K70INEA	6.9	option	(2011/65/EU, 2015/863)			Risk	0
M55342K03B221ER	6.9	option	(2011/65/EU, 2015/863)			High Risk	22
		Medium Risk	No	(2002/95/EC)		High Risk	29
			No			High Risk	0

### 4) Wiring Harness/Cable Connector Assembly

### 6) Integration into higher level assembly

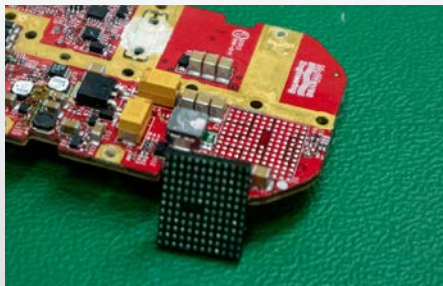
### 7) Top level testing, integrated system testing, module level testing





## Circuit Card & Cable/Wiring Harness Assembly

NuWaves manufactures ultra high density circuit card assemblies for use in high reliability military and commercial systems. We build a wide variety of circuit card assemblies, including RF power amplifiers, frequency converters, filters, digital I/O, power supplies, etc. We provide the end-user with defect free products for peace of mind. We additionally build custom cable assemblies for routing signals and power.



### LGA/BGA Installation and Rework Capability

NuWaves performs the CCA manufacturing, circuit card testing, top level installation, and top level testing of this power amplifier module for military applications.



### Production of a Digital I/O CCA

We produce CCAs, install firmware, and integrate the CCA into a higher level assembly.



### High Power Signal Wiring Harness

NuWaves builds wiring and cable harnesses for use in military and commercial applications.



### Conformal Coating Capabilities

NuWaves utilizes a conformal coating capability to protect your CCA from harsh environments.



### Competitive Manufacturing and Production Processes

Our processes provide value from manufacturing, test, and integration.

### Capabilities:

- Surface Mount Components (Down to 0201 Size)
- Through Hole
- Multi-layer and Single-layer CCAs
- BGA and LGA Installation
- CCA Level Testing
- CCA Integration into Higher Level Assemblies

## Top Level and Mechanical

NuWaves provides added value to the contract manufacturing process by providing installation and integration of circuit card assemblies and sub-modules into higher level assemblies. These can range from small to large. Our internal machine shop allows for quick-turn contract manufacturing and provides a one-stop-shop from CCA to top level integration.



Integration of a high power RF amplifier for use in military platforms.



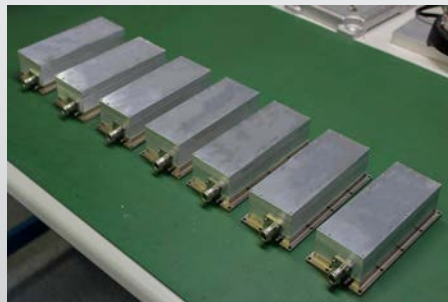
Building, assembly, and testing of shipboard and rotary wing tracking units for the Navy.



Internal machine shop for quick-turn production and rapid prototyping.



We manufacture, test, and assemble modules for use in military tracking pods.



Production of highly customized RF power amplifiers. NuWaves tests each module for compliance.



Assembly of portable test units for testing and troubleshooting military equipment on-site.

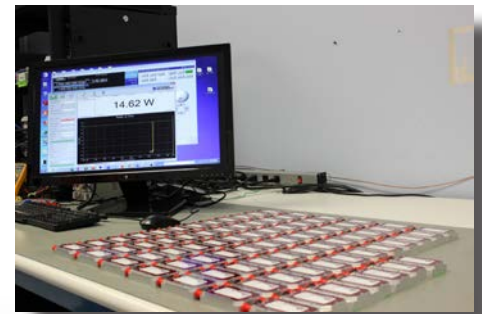
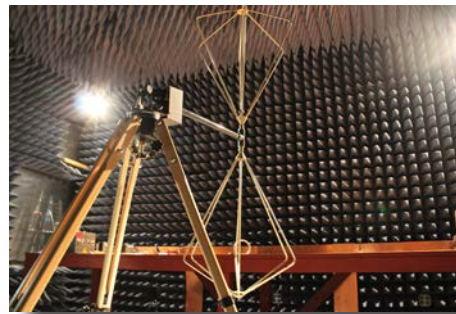
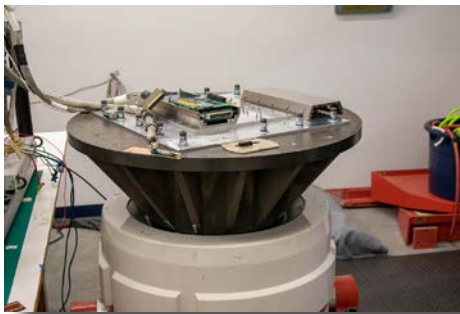
### Capabilities:

- Top Level Assembly
- Top Level Integration
- Machining of Electrical Housing
- Quick-Turn Production

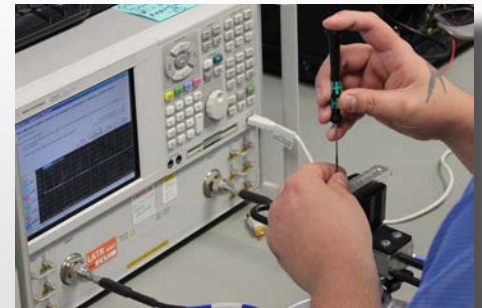


## Test Capabilities

NuWaves provides testing services throughout the entire contract manufacturing process. Our highly technical team provides testing at the CCA level, component level, top level, and system level of the production process.



NuWaves captures the experience and knowledge of its design engineering personnel while exploiting the vast capabilities of its facilities to ensure that it produces quality, quick-turn, and on-time services. With a varied product base, our engineers have the knowledge to support production programs, such as product development and customer build-to-print. Our engineering department provides strategic information for PCB and mechanical assembly during, and at all phases of production and testing. Additionally, we offer the ability to troubleshoot issues and work effectively with your team to develop solutions.



### Test Capabilities:

- Immersion
- Altitude/Leak
- Temperature
- Thermal Shock
- Humidity
- RF Test Screen Room
- Environmental Stress Testing
- Circuit Card Assembly Testing
- Electrical Design Testing
- Production Acceptance Testing
- MIL-STD Testing
- High-Level Module and System Testing
- Production Acceptance Testing
- Automated Testing
- Continuity Checks
- Troubleshooting

## Quality Assurance Commitment

NuWaves continues to invest in the latest technology to assemble products. We provide our customers with products and services that meet or exceed their expectations. Our AS9100-certified process includes the qualification of suppliers, in-process inspections, and incoming inspections.

**AS9100:2016 Rev D  
Certified**

**ISO 9001:2015  
Certified**

NuWaves Quality Management System is compliant to additional standards and follows further procedures including:

- In-House J-STD-001 Trainer
- IPC-J-Standard, IPC-A-610 Class 3 Operators
- IPC/WHMA-A-620
- IPC-7711/IPC-7721 Rework and Repair
- Root Cause Failure Analysis
- Traceability and Component Counterfeit Plan
- Climate, ESD, FOD Controlled Environment
- DFAR Compliant
- ITAR Compliant

## Value Added Service

NuWaves is a recognized industry leader in Printed Circuit Board Assembly (PCBA) of standard surface mount assemblies, advanced technology products, mechanical assembly top level integration, and electronic assembly testing. Our most common production quantities are in lot sizes ranging from 1-1000. We are experts in the assembly of high mix, low-mid volume, and high-reliability products.

- Design for Manufacturability Assemblies - DFMA
- Real-time fully integrated inventory system for AVL
- Incoming material and delivery tracking
- SiliconExpert component management
- Flexibility for push/pull situation
- ITAR Registered
- RoHS/REACH Compliant

## Risk Mitigation Imperative

In order to decrease the risk of creating a product that falls below our quality standards, we take it upon ourselves to employ a Risk Mitigation Imperative, which includes:

- Focus on Customer Spec
- Conflict Minerals Reporting
- Long Lead Materials Analysis
- Alternative Component Recommendations
- Counterfeit Part Mitigation

## Teamwork



Our culture that has zero tolerance for errors is the foundation of everything we do, every day, for every client.

Our team works together to constantly strive for excellence throughout our daily tasks. We are committed to our customers' success, seeking opportunities to build relationships, increase product quality, and deliver on-time and defect free services.

## Veteran Owned and Founded

### Our Mission

Maximize our employees potential in order to deliver high-technology engineering solutions and products, thus achieving unsurpassed excellence in client satisfaction and business results.

### Our Vision

Be the preferred provider of RF/Microwave Systems and Subsystems for the Defense and Aerospace markets by redefining excellence through a best-in-class integrated business system.

### Our Culture

Our system of Improve. Impact. Grow. allows for our employees to constantly improve the company in a way that allows for our teams' overall capabilities to develop and grow, pushing us to the next level of success.