



Company and Capabilities Overview



Space Qualified & Hi-Rel & Hi Power Components:

**Radial Power Combiners and Dividers, Filters, Multiplexers, Hybrids,
Couplers, OMT/Polarizers and Assemblies up to 65 GHz**

Ciao Wireless Basic Overview

- **Founded Feb 2003**
- **Experienced Leadership & Management Team**
 - **Ownership & Management Team Have a Proven Track Record in the RF & Microwave Product Manufacturing Arena**
 - **Previously Owned & Managed JCA Technology, Inc (Founded 1985), a World Leader in the Design & Manufacture of RF Microwave Amplifiers – Sold JCA in Jan 2001 to New Focus**
 - **Dedicated to “Teaming” with our Customer Base from the Beginning of the RFP Process to the Delivery of Product**
- **Solid Financial Balance Sheet**

Company Overview - Ciao Wireless

Passive Components & Environmental Test Services

Passive Components

- Design
 - Develop
 - Fabricate
 - Assembly / Tuning
 - Testing
 - Inspection
 - Analysis
- Full-Spectrum Passive Components Supplier**

Heritage

- Cleland & Company (1982)
 - Original company - waveguide components supplier
- Microwave Communications Corp. (1991)
 - Development into High-Reliability/Spacecraft Components Supplier
- Acquisition of P&H Labs (1998)
 - Addition of Ferrite Products
- MCCI, Inc. (2000)
 - Initiation of "Family" of RF/Microwave Components
- Acquisition of MCCI/Thetawave by Ciao Wireless, Inc. (2003)
 - Continuation of the manufacture of Space Qualified & Hi-Rel Filters, Power Combiners/Dividers, Couplers, Multiplexers, Hybrids, Iso-Filters, OMT/Polarizers, Build-to-Print Jobs and Environmental Testing Lab Services
 - Ferrite Products NOT Included in Current Product Offering

Facilities



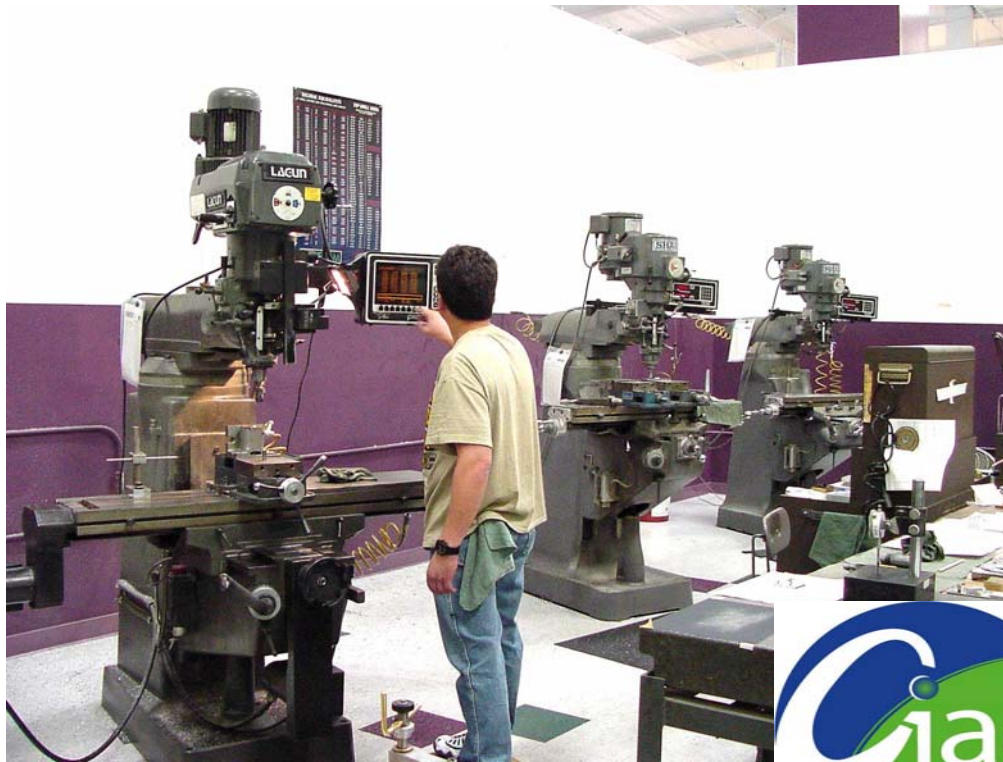
42,000 Sq Ft Facility

**All Sales,
Engineering,
Manufacturing,
Testing, and Quality
Assurance Functions
under one roof.**

**Located in
Camarillo, CA,
60 miles north of
Los Angeles**



Facilities – Modeling/Machine Shop



■ Machine/Modeling Shop

- CITIZEN CNC Lathe
- Conventional Lathes
- Multiple END-Mills
- Band-Saw
- Drill-Presses
- Grinder
- Bead-Blaster



Facilities – Mechanical & Incoming Inspection



■ Mechanical Inspection

- CMM & Special Measurement Tools

■ Incoming Receiving Inspection

- AQL-105 Sampling
- Mil-Std-883 Inspection Criterion

■ Full Parts Traceability



Facilities – Assembly & Test Labs

Assembly Lab:

- Modern & Fully Equipped to Respond to All Requirements
- NASA Certified Solderers
- Experienced Workforce with over 100-Man-Years in the RF & Microwave Industry
- In-Process Quality Inspections as per Mil-Std-883
- Hi-Power (1100W) Resistance Soldering Units
- Full Traceability at ALL Steps
- Class 100,000 Clean Room



Testing Lab:

- Highly Capitalized with Multiple Individual Test Stations
 - Includes Multiple VNA's (Up to 65 GHz)
 - Multiple Network Analyzers (Up to 40GHz)
 - Scalar Analyzers (Up to 20 GHz)
- Experienced Staff with over 100-Man-Years Experience in the RF & Microwave Industry
- Large & Spacious Area for Dedicated Customer "Program" Utilization
- Electronic Data Compilation & Analysis

Facilities - Quality Control

- **Certified with Various Government Subcontractors and OEM's as Meeting the Intent of ISO-9000**
- **Certified in Accordance With MIL-I-45208A**
- **Stringent Internal Quality Control Processes In Place**
 - **100% Receiving Inspection Performed on All Piece-Parts & Purchased Parts**
 - **100% Pre-Cap and Final Inspection**
 - **Daily Process Control Inspections**
- **Strict Adherence to a Formal QA Manual (Approved by Various Agencies)**
- **Full Traceability for All In-Process Milestones, from Parts Purchase & Kitting, Through Assembly, Test, Final Inspection and Shipping**
- **Use of Approved Vendors and Parts Only**



Engineering



Tools: **Ansoft HFSS / Touchstone**
 AutoCad/Solid Works
 Proprietary Applications



Customers

■ A Worldwide Customer Base Consisting of:

- Defense and Aerospace Contractors
- Armed Services
- National Labs and Institutes
- Government Agencies
- Wireless Communications Equipment Manufacturers



Company Overview – Customer / Industry

Customers (Top Ten)

- Lockheed Martin
- Space Systems/Loral
- Northrop Grumman
- Harris Corporation
- Raytheon
- Alcatel
- Boeing Space Systems
- Orbital Sciences Corporation
- Johns Hopkins
- JPL

Industries

- Spacecraft
(Commercial/Government)
- High-Rel
(Airborne/Ship/Ground)
- High-Rel (Missile Guidance)
- Point-to-Point (Commercial)
- Scientific Measurement
- Test Equipment

Product Capability & Overview

- **Ciao Wireless' Line of Passive Components and Assemblies Are Currently Supporting and Have Previously Supported Various Programs for Most of the Large Government OEMs and Military Agencies as Well as Commercial Organizations**
- **Ciao Wireless' Product Line includes Filters, Multiplexers, Combiners/Dividers, Couplers, Hybrids, Attenuators, OMT/Polarizers**
 - **Coaxial and Waveguide**
 - **Standard and Customized Designs Available to Meet Most Requirements**
 - **UHF to 65 GHz Product Capability**
- **Build-To-Print**

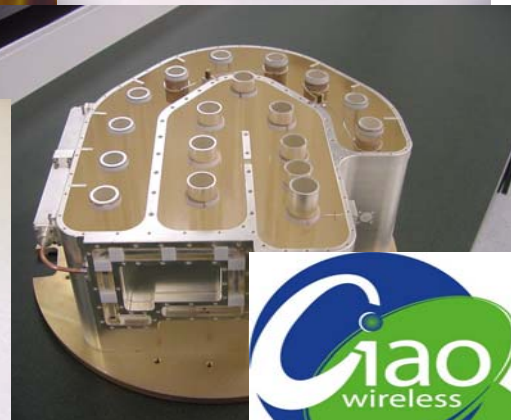
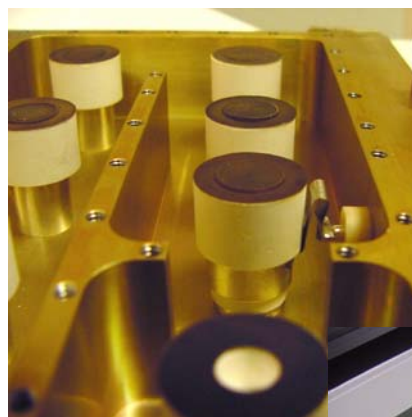
Ciao Wireless offers “value-added” solutions to larger spacecraft and aerospace companies seeking to outsource manufacturing operations



Filters/Multiplexers

■ A Leading Supplier of Passive Filters/Multiplexers/Couplers

- Bandpass, Lowpass, Band Reject, Multi-Mode
- Coaxial, Waveguide, Lumped Element, Microstrip, Stripline
- Multiplexers (2-5 Channels)
- Iso-Filters
- Integrated Assemblies
- Broadwall, X-Guide, Branchline

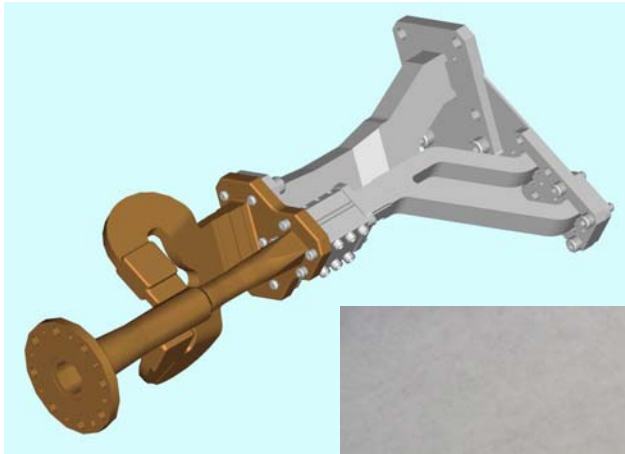


Radial Power Dividers/Combiners

- Radial Operations (Divide/Combine) at S and X-Band for High-Pwr Radar Applications
- Designs from 0.4 to 30.0 GHz
- Standard Designs Include: 8:1, 24:1, 32:1, 36:1, 48:1, 64:1, 68:1 with Proven Product Heritage
- Power Handling Capability up to 30KW
- Currently in volume production for MK-92 and ASPARCS radar programs
- Build-to-Print Services Available



OMT/Polarizers

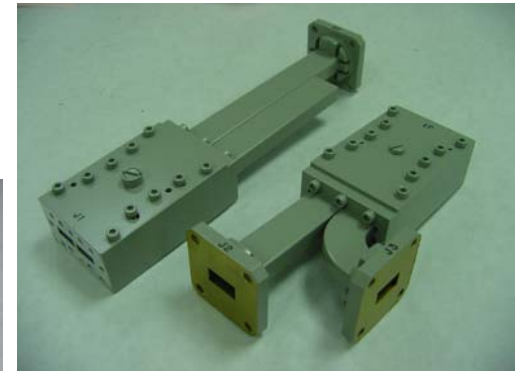


- Developed for the Wideband Gapfiller Program
- 20/30 GHz Simultaneous Rx/Tx Operation
- Electroformed OMT/LPF
- Innovative phase compensating Hybrid design



HYBRIDS, CROSS-GUIDE & COAXIAL COUPLERS

- Frequency Coverage from UHF to 65 GHz
- Qualified High Power Capability up to 500W
- Waveguide & Coaxial
- Low Loss (< 0.15 dB)
- High Isolation (> 20 dB)
- High Directivity (> 20 dB)
- Lightweight Designs
- Space & Hi-Rel Qualified
- 90° & 180° Channel-Channel Phase Separation



SPACE AND HI-REL MILITARY PROGRAM HERITAGE

SPACE HERITAGE

- Mars Pathfinder
- MER (Mars Exploratory Rover)
- TITAN (Various Launches)
- STEREO Program
- SBIRS
- Direct TV-7
- MB-Sat/IP-Sat
- Pan-Am Sat

MILITARY PROGRAMS

- MK-92
- Patriot
- APX-109
- E-2C Hawkeye
- ASPARCS
- MMSR
- UCWIM

Environmental Testing Services Laboratory

- **Fully Equipped and Independent State-of-the-Art Environmental Testing Services Facility Including Vibration, Shock, Thermal Cycling, Thermal Shock, and Thermal Vacuum**
 - **Operates as a Separate Business Unit with no “Conflict of Interest” with the Ciao Wireless Product Line**
- **Ciao Wireless Provides Test Equipment and Personnel as Opposed to Other Labs**
 - **Saves Time, Money, and Resources**
- **Special Tests Include: Thermal Vacuum, Multipaction, High-Power Testing, High-Dynamic Range Measurement Capability**



Environmental Test Lab



Vibration & Shock Table



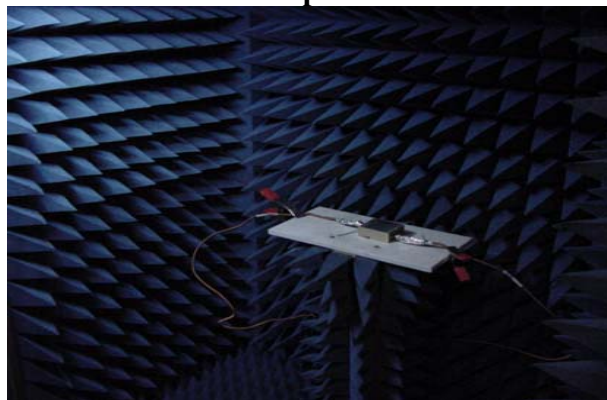
Thermotron Temperature Chamber



Tenney Thermal Shock Shuttle Chamber



Thermal Vacuum/Multipaction Chamber



EMI/EMC Testing Chamber



**In-House Hi-Power Testing
(TWT's up to 200-Watts)**

Ciao Wireless' Environmental Test Lab Summary & Capabilities

DYNAMICS:	CLIMATICS:	EMI/RFI/EMC:
Vibration <ul style="list-style-type: none"> • Random & Sinusoidal • Long-Stroke • Transportation/Packaging • Gunfire • NAVMAT Screening • Combined Environment Reliability Shock <ul style="list-style-type: none"> • Half-Sine, Sawtooth, Squarewave • Long Duration • Transportation • Spectrum/Pyrotechnic 	<ul style="list-style-type: none"> • High and Low Temperature • Thermal Shock • Thermal Cycling (Ramp and Soak) • Burn-in/AGREE • Thermal Vacuum • Highly Accelerated Life Test (HALT) • Highly Accelerated Stress Screening Test (HASS) • Accelerated Stress Test (AST) • Altitude • Humidity 	<ul style="list-style-type: none"> • Conducted Emissions Testing (CE) • Conducted Susceptibility Testing (CS) • Radiated Susceptibility Testing (RS) • Radiated Emissions Testing (RE) • Electromagnetic Compatibility Testing (EMC)
ADDITIONAL CAPABILITIES:	STANDARDS AND TESTING REFERENCES:	
High-Power Testing <ul style="list-style-type: none"> • Power Levels up to 200-Watts • Frequency Coverage up to 22 GHz High Dynamic Range Measurement Capability: <ul style="list-style-type: none"> • Sensitivity Ranges Greater than -125 dB Multipaction Corona Testing: <ul style="list-style-type: none"> • Power Levels up to 200-Watts • Frequency Coverage up to 22 GHz • Critical Pressure/Altitude Testing • Complete Multipaction Analysis 	Military Standards: <ul style="list-style-type: none"> • MIL-STD-883 • MIL-STD-810 • MIL-STD-461 • MIL-STD-462 • MIL-STD-285 • MIL-STD-704 • MIL-STD-1541 • MIL-T-5422 • MIL-E-6051 • MIL-STD-202 • MIL-PRF-24308 • DOD-STD-139 • MIL-A-28875A 	Commercial: <ul style="list-style-type: none"> • RTCA DO-160 • BOEING D6-16050/D6-44588 • NASA Specifications • MSFC-SPEC-521 • SL-E-0002 • SSP 30237 • TELCORDIA (Bellcore) Consumer Electronics <ul style="list-style-type: none"> • FCC • CE • FDA • TELCO

Ciao Wireless Company Summary

- **A Leading Designer and Manufacturer of Space Qualified and Hi-Rel Passive Components Including Filters, Multiplexers, Couplers, Polarizers**
- **Proven Track Record and Extensive Space Heritage on Multiple Programs**
- **Experienced Staff of Industry Professionals Ready to Address all Requirements with the Ability to Assess Risks and Identify Solutions**
- **Comprehensive Experience in Military & Space Reliable, High-Q, and High-Power Passive Components in the RF & Microwave Industry**
- **Quick Response Team for All Facets of Customer's Requirements, from Quality and Engineering, to Design, Quote, and Delivery**

Company Contact Information



Ciao Wireless, Inc.

4000 Via Pescador * Camarillo, CA 93012

(805) 389-3224 (phone) * (805) 389-3629 (fax)

E-Mail: Sales@CiaoWireless.com

www.ciaowireless.com