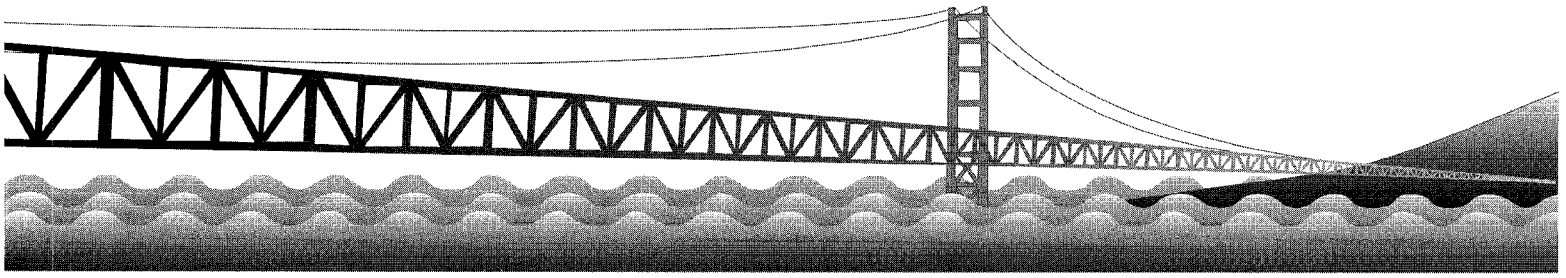


1996 IEEE MTT-S Exhibition Guide

The following list is complete as of press time, but may not include all companies.

Accumet Engineering Corporation **1127**
Hudson, MA

Hugh S. Muffoletto

Dicing (laser and diamond saw), lapping and polishing ceramic; and BeO, silica, AlN and other dielectric substrates.

Advance Reproductions **1442**
N. Andover, MA

Carmen Losanno, Martin Crowley, Gina Latulippe

Optical photomasking services to the microwave industry; and a full range of services from computer-aided drafting to reticle generation, image repeating, laser plotting and digital imaging.

Advanced Technology Group Inc. **414**
Rockaway, NJ

Li Yuan Tao, Eric Maier, Richard Ionassen

Glass-to-metal seal packages, including flat packs, dual in-line headers, feedthroughs, unibody and machined, microwave, TO, power, fiber-optic and custom-designed hybrid microcircuit packages.

AEG Elektronische Röhien GmbH **1101**
Ulm, Germany

Guenter Palz, Heinz Hammerling

Traveling-wave tubes (TWT) for satellites from 10 to 200 W, radiatively and conductively cooled, and L- through Ka-band; power supplies for space TWTs and complete space TWTs; ground station TWTs and TWTAs; and TWTs for airborne applications (especially Ka-band).

Aeroflex Labs, Comstron Division **422**
Plainview, NY

Dennis Brockway, Murray Welch, Len Borow

Agile frequency synthesizers and phase noise test sets; thick- and thin-film, digital, RF microprocessors and memory MMICs.

Aerowave Inc. **601**
Medford, MA

T. Kozul, M. Kozul, L. Kahn, E. Walters

Eighteen to 325 GHz mm-waveguide devices; monitoring and measurement directional couplers, power dividers and combiners; variable attenuators, super power loads, terminations, waveguide switches, pressurizing units, bends, twists, flanged lengths and hardware.

AET Associates Inc. **1409**
Cupertino, CA

Peter Hahne, Eiji Tanabe

The Maxwell equations by finite integration algorithm (MAFIA) software package is a multipurpose ECAD system used in the simulation of electromagnetic fields, ranging from statics to the optical frequencies; MAFIA has been used worldwide in research laboratories and industry for over 20 years, and is an advanced and sophisticated code.

A.J. Tuck Company **1206**
Brookfield, CT

A. Tuck, D. Tuck, L. Hunt

Custom-manufactured components by electroforming, including waveguide transition, filters, cavities, polarizers, OMTs, horns, miniature double-ridge and mm-waveguide components; air dielectric coaxial cables; and specialty engineering applications.

Alan Industries Inc. **326**
Columbus, IN

B. Kennedy, C. Shofner, W. Kennedy, S. Kennedy

Passive components for the wireless/satellite communications industry, including programmable, rotary and continuously variable attenuators; DC blocks; matching pads; directional couplers; terminations; return loss bridges; and coaxial switches; custom applications are available.

Alcatel Network Systems —
Ferricom Ferrite Products **811**
San Jose, CA

M. Swift, M. Kyser, L. Wagoner, T. Nguyen

Microwave isolators and circulators from 100 MHz to 40 GHz; standard/custom coaxial, drop-in, waveguide and isoadapter configurations; cellular and PCS models with ultra-low loss; average powers to 630 W; enhanced intermodulation performance; forward/reverse power detectors; intermodulation suppression panels; and low loss/high rejection RF filters.

American Technical Ceramics **1119**
Huntington Station, NY

Ralph Wood, Rich Fiore, Kate Levine

RF/microwave/mm-wave capacitors, including ceramic and porcelain MLCs, high voltage capacitors, ceramic single-layer capacitors (SLC), and custom products and assemblies; custom metalization and patterned substrates for a variety of hybrid circuit requirements; and low cost, general-purpose ceramic MLCs for high volume surface-mount applications.

Amphenol Communication
& Network Products Division **729**
Danbury, CT

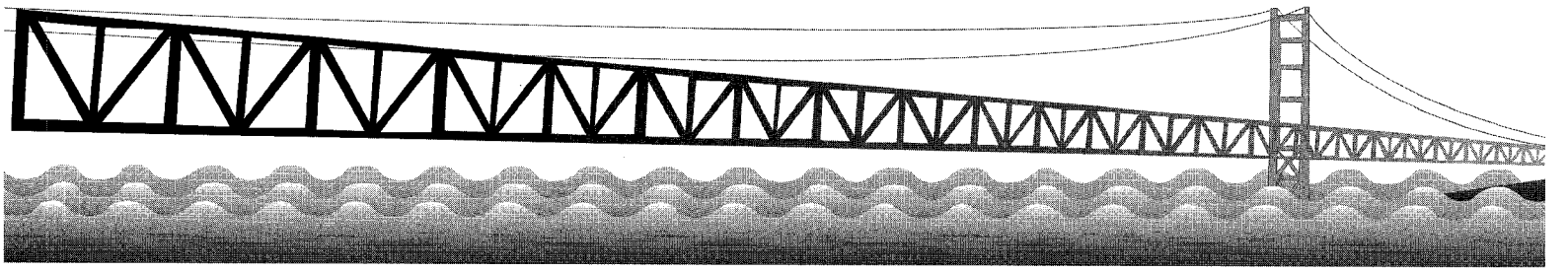
V. Borase, W. Strobel, J. Germany, N. Buonanno, W. Harris

ISO-certified manufacturer of RF/microwave connectors for wireless/telecom, computer networking, instrumentation and cable television industry applications; products include Micromate microminiature, 7-16, SMA and SMB, UHF and mini UHF, N, BNC, TNC, size 8 contacts and semiflex connectors.

Amplica Inc. **306**
Newbury Park, CA

Gary Keithley, David Sprague, Lee Leong

Drop-in microwave component and modular assemblies from 100 MHz to 100 GHz for base, site, head-end or network hubs; gain and conversion blocks, analog and digital conversion stages and other wireless systems elements from interface to antenna; and cost-effective, high quality plug-and-play microwave/mm-wave OEM links.



Amplifier Research **405**
Souderton, PA

Donald Shepherd, Ethel Shepherd, Larry Pokorny

RF and microwave broadband power amplifiers, dual-directional couplers, field strength monitors and sensors; amplifiers from 1 W to 10 kW and from DC to 18 GHz; and accessories, including antennas, leveling pre-amplifiers, TEM cells, fiber-optic telemetry systems and directional couplers.

Amplifonix **1432**
Philadelphia, PA

Richard Bussemer, Phil Grunes, Arthur Riben

Hybrid, bipolar and GaAs low to medium power amplifiers, PIN diode and GaAs switches, attenuators and VCOs in the kHz to 3 GHz frequency range; standard and custom solutions for major military and commercial OEMs; and Ax CASCADE design software.

Anadigics Inc. **323**
Warren, NJ

George Oliver, Javed Patel, Jerry Miller

GaAs MMICs serving RF/microwave markets, including wireless, fiber optics, direct broadcast and cable TV applications; high power ICs for cellular and PCN/PCS terminal and base station designs, including wireless local loop; and high volume, low cost components per ISO 9001 standards.

Anritsu Wiltron **636**
Morgan Hill, CA

Ken Harvey, Ray Beers, Cindy Dong, Ed Daw

Test and measurement solutions for data communications, SONET, digital cellular, and RF and microwave applications; new technology with current standards for a complete line of high speed communications test equipment, optical time-domain reflectometers, spectrum analyzers, network analyzers and digital mobile radio testers.

Ansoft Corporation **424**
Pittsburgh, PA

Maxwell® Strata™ is the industry's only multilayer planar EM field solver for true three-dimensional implementation of trace currents; Strata's implementation features enable the simulation of larger, denser and more complicated structures, opening the door to highly dense RF, microwave, mm-wave and MMIC circuit design.

Apollo Microwaves Ltd. **540**
Pointe-Claire, Quebec, Canada

Nick Vouloumanos, Lori Schatt

Components and subsystems, including filters, switches, terminations, couplers, circulators, isolators, adapters, front-end assemblies and switching combining for satellite earth station, telecom and military applications.

Applied Microwave & Wireless **1345**
Orleans, MA

J. White, E. White, S. Spencer

A quarterly magazine written for professionals in the RF, microwave and optical fields, and emphasizing wireless design and development spanning the 1 MHz to light frequencies in an easy-to-read, enjoyable format.

Artech House Publishers **413**
Norwood, MA

M. Walsh, M. Gambino

Technical books and software covering the latest RF, microwave, antenna, and wireless applications and techniques, including CAD of microwave networks, frequency multipliers, electromagnetic scattering, circuit analysis and optimization, and transmission line visualization.

Artwork Conversion Software Inc. **401**
Santa Cruz, CA

Steve DiBartolomeo, Hagai Pettel

CAD translators for microwave designers, including DXF to Gerber, HP's series IV to Gerber, GDSII, IGES, ME-10 and EGS; and tutorials on how to design and obtain large-area fine line photomasks.

Assemblies Inc. **1330**
Warner Robins, GA

Jack Daniel, Jack Daniel, Jr.

Flexible and semirigid coaxial cable assemblies, and precision coaxial connectors.

Astrolab Inc. **819**
Warren, NJ

S. Toma, J. Toma, M. Ceres

Commercial and military coaxial connectors, cable, cable assemblies, adapters and other passive components.

A.T. Wall Company **501**
Warwick, RI

Dick Huntsman, Rick Sorensen

Atlantic Microwave Corporation **950**
Bolton, MA

Frank Cavallaro, Jack Vankuilenburg

Design, development and production of microwave components and assemblies, including monopulse comparators, series antenna feeds, power dividers/combiners, imageless mixers/amplifiers, RF heads and other custom-designed waveguide assemblies built to customer specifications, as well as antenna design and production.

ATN Microwave **1129**
Billerica, MA

Mike Fennelly, Vrodir Zohrabian, Kevin Coffey, Vahé Adamian

LP1 load pull system with harmonic tuning, NPS noise parameter test system and ECAL electronic calibration systems.

Balo Hermetics Company **223**
Butler, NJ

Edward Rapoza, Michael O'Keefe, Jay Greenspan

Hi-rel packages for microwave applications, including channelized switch packages, standard RF configurations and surface-mount types, and glass-to-metal and ceramic-to-metal construction; and package design and engineering services, in-house machining, and sealing and plating capabilities in accordance with MIL specs.

Avista Design Systems **1527**
Folsom, CA

Paul W. Tuinenga, Graham Bell

Fast nonlinear design on the PC; Spectre/XL for RF and microwave design is a breakthrough for the simulation and analysis of high frequency circuits; features include interactive simulation for nonlinear circuits such as mixers and receivers, especially the frequency translation of signals and noise; instant what-if analysis is a powerful tool for developing, evaluating and optimizing high frequency designs.

Belden Wire & Cable Company **1325**
Richmond, IN

Bill Slater, Berne Gebs, Kip Coates

Conformable coax replaces semirigid cables for hand-formable, easy-to-install assemblies; conformable coax is sweep tested to 20 GHz, exhibits exceptional phase stability and has the longest flex life of any hand-formable product on the market.

Berg Electronics, RF Division **1407**
Franklin, IN

David Kostka

RF microwave connectors and related RF products, including BNC, TNC and N series; SMA, SMB, SMC and series adapters; and interconnection devices and cable assemblies.

Boonton Electronics Corporation **1114**
Parsippany, NJ

Gurpreet Kohli, Al Chiaravallo

Electronic test and measuring equipment, including RF voltmeters, modulation analyzers, audio analyzers and impedance measuring instruments to test terrestrial and satellite wireless communications, radar, telemetry, and various other RF and microwave systems.

Brush Wellman Inc. **612**
Cleveland, OH

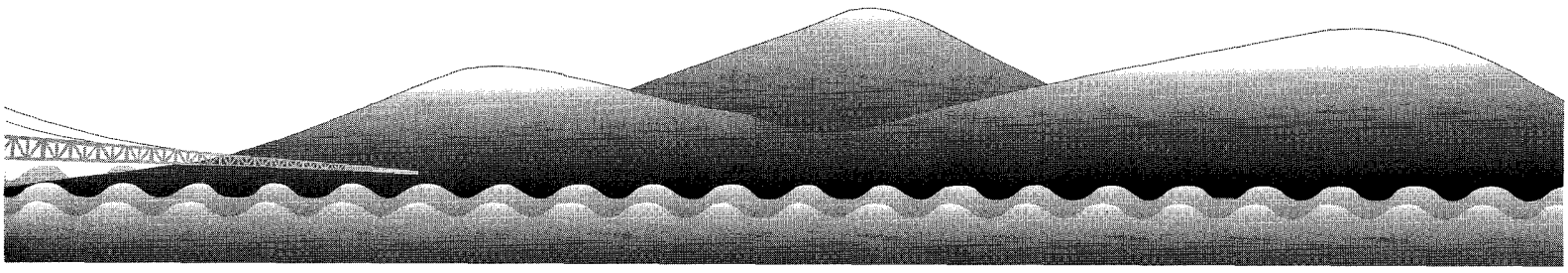
S. Kazarian, E. Lewis

Ceramic-based heat sinks, thin- and thick-film substrates, and copper-bonded ceramic packages.

Buckbee Mears **1017**
St. Paul, MN

Fred Grimm, Pat Beadles, Sharon Maze, Bonnie Bateman

Large microwave PCBs used as printed circuit antennas, radomes and RF shields for medical imaging equipment; stripline and microstrip circuits up to 120" long; and photo-etched metal parts.



California Eastern Labs (CEL) **616**
Santa Clara, CA

J. Jacobs

North American agent for NEC RF, microwave and optoelectronic semiconductors, including small-signal and power bipolars, small-signal and power GaAs FETs, silicon and GaAs MMICs, multichip hybrids and photocouplers.

Cascade Microtech **918**
Beaverton, OR

E. Strid, E. Godshalk, J. Pence, T. Burcham, D. Erikson, T. Myers

Advanced microelectronic probing solutions, precision tools and analytical experience required to make accurate, repeatable, on-wafer measurements; the new line of mm-wave probes, impedance-matching probes and WinCal 2.0 software will be demonstrated.

Cernex Inc. **249**
Cupertino, CA

State-of-the-art thin-film hybrid microwave amplifiers and subassemblies; and ultra-low noise and very high power broadband and narrowband amplifiers from 0.1 to 40 GHz, limiting amplifiers, active frequency multipliers and gain modules.

Communication Techniques Inc. **720**
Whippany, NJ

I. Crossley, B. Badami

Microwave signal sources and frequency synthesizers for the communications market; a unique total resource for low phase noise signal generation over the frequency range from 7 MHz to over 30 GHz; products include phase-locked and free-running DROs, CROs, VCOs and cavity oscillators; microwave frequency synthesizers for VSAT, SATCOM and digital radio applications; and VXI synthesizers and up/downconverters for cellular and WLAN test equipment, subsystems, and clock and data recovery modules beyond 10 GHz.

Compact Software Inc. **905**
Paterson, NJ

Tom Wilson

The Microwave Success CAD tool performs end-to-end simulations of modern RF/microwave, analog, digital and mixed-signal wireless communications systems, and supports popular formats including CW, analog modulation, digital modulations and TDMA applications; analysis types include waveform and digital time analyses, spectral analysis, sweep analysis, intermodulation analysis, BER calculations, and cumulative and delta budget analyses.

Compex Corp. **1112**
Medford, MA

Gerald C. Gordon, Carole Ennis

A variety of parallel plate ceramic capacitor values, sizes and configurations; gap, margin, row, binary and custom array caps are available gold-plated wire and solder bondable, many are available pretinned from 0.06 pF and 10 × 10 mils; selected values and sizes shipped within 48 hours.

Component Distributors Inc. **1429**
San Diego, CA

Distributor of RF microwave, wireless, data communications and other high tech components.

Component General Inc. **610**
Odessa, FL

Linda Cook, Tom Floridio

Power base mounted components, including resistors, terminations and attenuators; SMA terminations; conduction cooled loads; power chips, including resistors, terminations and attenuators; coaxial components, including rods, discs and T-pads; and flange terminations.

Condel Technology **1445**
Cupertino, CA

Nick Langston, Sr., Nick Langston, Jr., David Crosby, Doug Greenwood

A line of high performance test sockets for use at microwave frequencies; socket contact length is 1 mm; the test socket exhibits a self-inductance of 0.4 nH at 1 GHz and a typical 3 dB bandwidth of > 10 GHz.

Conductus Inc. **1248**
Sunnyvale, CA

Stephen Garrison

An ultra-low noise front-end receiver subsystem for cellular and PCS operators has been introduced; the unit increases existing station coverage (when reverse-path limited) and can eliminate the need to build out new cell sites; effective line-of-site range can be increased 30 to 60 percent depending on the configuration.

Connecting Devices Inc. **305**
Long Beach, CA

John Dunbabin, Walt Carpenter, Mohsin Pecran

Microwave connectors, including SSMA, SMA, N, TNC, 2.4 mm, 2.9 mm, 3.5 mm, 18 to 40 GHz radius right angle, field replaceable to 26 GHz, in and between series, hermetic, phase adjustable and specials; and cable assemblies, including custom semirigid and flexible, handi-form reformable; and SMP push-on/blind mate connectors.

Continental Microwave & Tool Co. Inc. **1014**
Hampton, NH

Tim Brown, Larry Coombs, Joe Ripel

Flexible and rigid waveguide assemblies, passive components, waveguide antennas, and rectangular and double-ridged waveguide in rigid and seamless flexible styles from WR430 to WR19.

Coors Ceramics Company **515**
Golden, CO

Jack Gagnon, Wally Johnson, Kathy Hilfer, Frank Anderson

An array of high dielectric barium titanite materials, polishing capabilities, precision lasering capabilities and thin-film alumina substrates.

CRC Press Inc. **945**
Boca Raton, FL

Susie Carlisle, Joel Claypool

Recently published engineering handbooks, including *The Circuits and Filters Handbook.*

Cuming Corp. **1525**
Avon, MA

Jorgen Bruun, Julio DaSilva

Microwave absorbing materials and assorted dielectrics.

Custom Microwave Inc. **948**
Longmont, CO

Emory Horvath, Mike Larson, Clency Lee-Yow

Forty years of design and manufacture of precision electroformed waveguide components from 8 to 1000 GHz; custom and standard catalog items; and a unique combination of precision machining and electroforming processes, which produce detailed, accurate internal shapes that cannot be manufactured with other processes.

Daden-Anthony Associates Inc. **1024**
San Clemente, CA

William Anthony, Dennis Hook, Dan Ralston

GPS low noise amplifiers; filters; limiter subassemblies; wireless filter products; custom RF and microwave filters and multiplexers, including high-pass, lowpass, bandpass and notch (band reject); cellular base station filters built to specification without NRE; and switched filter banks; commercial, military and space levels are available.

DBS Microwave Inc. **1305**
El Dorado Hills, CA

B. Anderson, S. Fake, D. Lusky, M. Rhoades

Microwave and mm-wave GaAs FET amplifiers covering 0.5 to 62 GHz for low noise, high power and high gain limiting applications; active frequency multipliers to 96 GHz; and microwave and mm-wave up/downconverters to 50 GHz; products are for high performance military and high volume, low cost commercial applications.

Delphi Components Inc. **1343**
Laguna Niguel, CA

Ron Earl, Craig Northrup

Delta Electronics Mfg. Co. **1348**
Beverly, MA

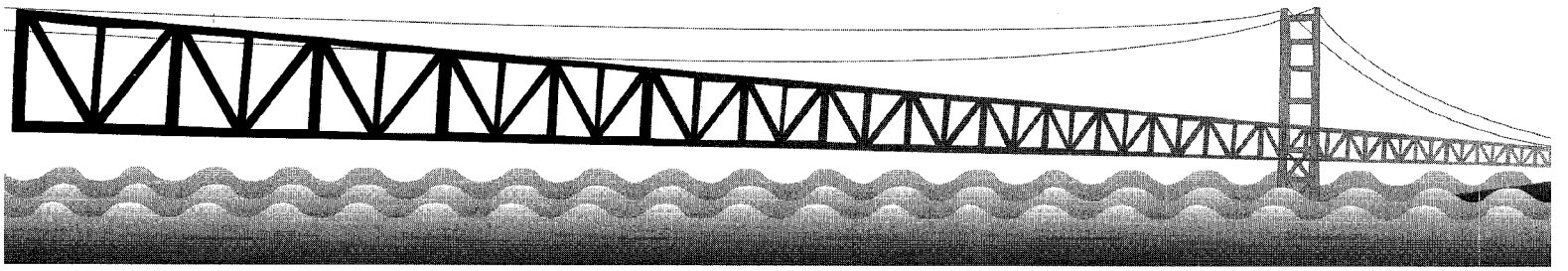
Jim Gillen, Mark Reagan

Quality, USA-manufactured RF coaxial connectors, including BNC, TNC, N, SMA, SMB, SMC, TWINAX, GR874, HN, LC-LT, MHV, 75 Ω BNC and TNC, 700 Ω N, UHF and 7/16 (DIN 47223).

Dielectric Laboratories Inc. **712**
Cazenovia, NY

Gunter Vorlop, Wendell P. Hautaniemi, Tricia Farber, Dave Bates

High performance, low loss ceramic capacitors in both single- and multilayer packages; capacitors



for high power applications; and high K substrates for circuit reduction and passive integrated components, such as P-Cid and E-field chokes.

Ditom Microwave Inc. **1343**
San Jose, CA

Dick Hassett, Tom Weisz

Three hundred MHz to 40 GHz coaxial and waveguide ferrite isolators and circulators, 820 to 960 MHz high power low intermodulation circulators and isolators for cellular radio applications, 320 to 330 MHz high power isolators and circulators for pager applications, and isolators and circulators in the 1800 to 2000 GHz band for PCS.

DMT Division of Jay-El Products **506**
Camarillo, CA

B. Borlet, D. Colletta, A. Cheung, G. Etzler, P.J. Williams, J. Trujillo

Coaxial switches, filters (waveguide and coax) and components; unique designs include lightweight compact SPST and SPDT switches, innovative switch matrices, and custom switch and filter requirements; applications include commercial wireless, satellite, ATE, aerospace and military markets.

DuPont Superconductivity **1224**
Wilmington, DE

D. Laubacher, A. Lauder, K. Hartnett, Z. Shen, C. Wilker

Custom, prototype and commercial superconducting components, devices and subassemblies; design support; high performance microwave components, including resonators, amplifiers, oscillators, filters, delay lines, splitters, combiners and antennas; benefits include high Q, low insertion loss and phase noise; and high temperature superconducting thin films up to three inches in diameter with good microwave properties.

Dynatex International **1246**
Santa Rosa, CA

Leanne Schmidt, Peter Thompson

Semiconductor dicing equipment and materials, including the DX-III scribe and break system, precision hubbed diamond dicing blades, dicing lubricants and adhesive films for wafer mounting.

Dynawave Inc. **844**
Georgetown, MA

Christopher Lewis, Robert Iwanicki, Tony Scannelli, Don Gartzke

RF/microwave cabling, harnessing, delay lines, high power cables and RF connectors for wireless systems; all cable assemblies are UL and CSA approved; 10 years experience in automated manufacturing and testing allows large production runs as well as smaller prototype orders to be produced on a JIT basis while maintaining cost effectiveness.

Eagleware **812**
Stone Mountain, GA

Randall Rhea, Chuck Holmes, Glenn Parker

GENESYS is an integrated suite of easy-to-use and accurate synthesis and simulation tools to assist RF and microwave circuit designers; the software runs on IBM and compatible PCs under DOS, Windows 3.1, Windows 95 and Windows NT; the latest release includes a layout module.

EE — Evaluation Engineering **1444**
Nokomis, FL

The pioneering magazine of electronics test offering monthly coverage of RF, microwave, wireless, EMI/RFI and related testing topics from R&D through design into manufacturing and out into field service; issues relating to today's high frequency testing environment; free subscription.

EEV Inc. **630**
Elmsford, NY

P. Fochi, A. Markiewicz, D. Taylor

TWTs and TWT amplifiers for radar, communications and ECM applications, including the model N10110 6 to 18 GHz, 200 W TWT; high performance receiver protectors; solid-state microwave semiconductor devices; magnetrons for industrial heating applications; X- and Ku-band injection-locked magnetron amplifiers; and 250 kW S-band packaged magnetrons for radars.

EIP Microwave **336**
Milpitas, CA

Bill White, Steve Ashby, Ivan Andres

A field service microwave counter, wireless signal generator and VXI downconverter with preselector; microwave CW, source-locking and pulse counters to 179 GHz; and VXI synthesizers to 20 GHz.

EMC Technology Inc. **439**
Cherry Hill, NJ

H. Adjemian, L. Catalina, T. Adair, D. Markman

Microwave components, including a full line of surface-mount terminations, attenuators, resistors, hybrid baluns and Thermopad®, a unique solution to temperature compensation problems; flange loads, high power terminations, resistors and attenuators; and SMA terminations.

EMF Systems **503**
State College, PA

Joan and John Chernega, Jim Chernega

Solid-state microwave sources for military and commercial markets, including crystal, dielectric resonator and phase-locked oscillators, and synthesizers and associated circuitry.

EMS Technologies Inc. **1317**
Norcross, GA

Dave Giese, Jeff Yann, Mike Last, Clay Hine, Bob Hindes, Janet Olsen, John F. Pippin, Bob Wilson

Development and production of microwave electronic components and subsystems for space, military and commercial applications; ferrite components, solid-state technology and electronically steerable antennas used in communications, surveillance, remote sensing, tracking, radar and radiometer applications; microelectronics products include internally matched FETs, solid-state power amplifiers and electronic power converters.

Engineering Information Inc. (Ei) **142**
Hoboken, NJ

Steve Moss, Mark Sauter

Publisher of *Engineering Index* and *Ei Compendex®*; *Engineering Information Village™* offers technical professionals and managers a way to master engineering cyberspace; time-saving, integrated desktop access to annotated, useful and reliable Web sites, on-line database information, filtered technical newswires and a community of senior resident engineers; free.

Ericsson Components, RF Power Products **1324**
Morgan Hill, CA

Harold Barmore, Jeff Olson, Susan Sylvia

ISO 9001 certified, worldwide supplier of cost-competitive, high quality RF power devices for all base station applications operating in the 300 MHz to 2.5 GHz frequency range requiring power levels ranging from 0.25 to 175 W for demanding RF applications.

ETI **1349**
Springfield, NJ

John Howard, Jim Logothetis

A wide range of application-specific beamformers, RF and microwave components, and systems to meet unique system requirements; beamformers are available in narrow and wide bandwidths from 100 kHz to 65 GHz.

ETM Electromatic **944**
Newark, CA

John Brown, Tom Hayse

A ninety-employee company experienced in the manufacture of satellite communications traveling-wave tube amplifiers, high voltage microwave tube amplifiers and microwave tube test power supplies; custom, modular microwave amplifiers for various applications; all amplifiers and power supply systems are CPU controlled.

Film Microelectronics Inc. **1440**
No. Andover, MA

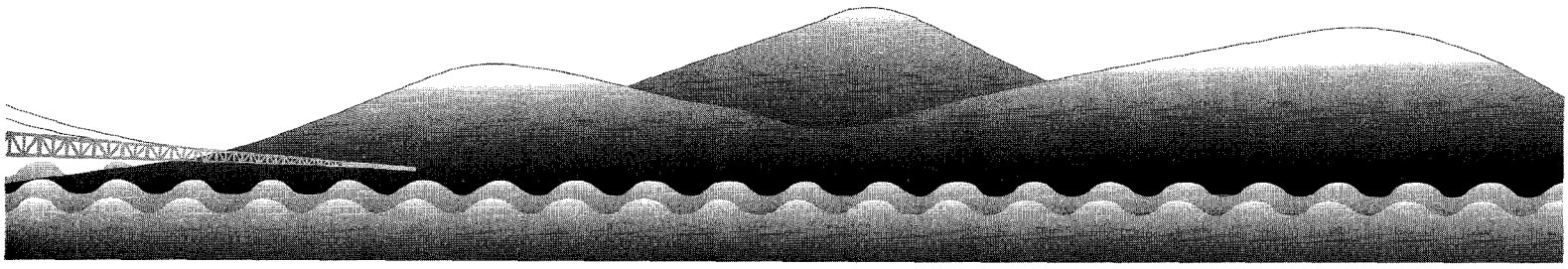
Paul Richard, Donna Stevenson

Metalized substrates, alumina quartz, aluminum nitride, sapphire, beryllia, ferrites, titanites and opaque ceramic; metalization schemes include TAN, TiW, nichrome, nickel, platinum, Au, metalized vias and wrap-around; available resistors include silicon, ceramic and back contact; custom networks and circuits manufactured per customer drawing; prototypes delivered in four weeks.

Filtran Microcircuits **226**
Ottawa, Ontario, Canada

C. Sutton, P. Terzian, N. Sutton

Production of precise microwave circuits; examples of fine line, narrow gap circuitry with various plating and dielectric combinations; and proprietary sputtered blind hole approach, multilayer PTFE and thin-film on ceramic will be displayed.



First Source Inc. **203**
San Jose, CA

Kimberly Rohde

Distributor/manufacturer's representative of connectors; adapters; attenuators; DC blocks; terminations; gain equalizers; amplifiers; mixers; switches; waveguide components; capacitors; filtered D-subs; glass-to-metal feed throughs; microcircuit packaging; isolators; circulators; and custom semi-rigid, flexible and test cable assemblies.

Flexco Microwave Inc. **916**
Hackettstown, NJ

Precision coaxial cable assemblies; applications include test systems, cellular and communications, satellite, defense, DC to 50 GHz, low loss and high power; any connector combination is available; ODs from 0.086" to 1.625".

Florida RF Labs Inc. **1236**
Stuart, FL

Gerald Feriex, Douglas Sampson, Gary Moore

A manufacturer of thin-film resistive products, terminations, attenuators and power resistors, as well as high reliability RF and microwave flexible, semi-flexible and semirigid cable assemblies covering applications from DC to 40 GHz.

Focus Microwaves Inc. **516**
Pointe Claire, Quebec, Canada

D. Dubouil, C. Tsironis, Q. Liu

Load pull and noise measurement systems from 0.4 to 100 GHz; coaxial tuners from 0.4 to 50 GHz, waveguide from 33 to 100 GHz; TRL calibration kits (APC 7, 3.5, K, 2.4 mm); active load pull system (ALPS); ultra-wideband tuner (1 to 40 GHz); load pull and noise measurement services; and power amplifier design software.

Frequency Electronics Inc. **924**
Mitchel Field, NY

Len Martire, Mickey Elwood, Vito Re, Gene Kushner

Precision frequency sources including signature OCOXOs, rubidium clocks and associated distribution systems; satellite communications are supported by C- and Ku-band VSAT RF transceivers; microwave MMIC devices are offered in chip or packaged form; a broad range of custom assemblies also are available.

FSY Microwave Inc. **1228**
Columbia, MD

Bill Forrestel, Bill Holland, John Yania, Sam Johnson

High performance IF, RF and microwave filters, duplexers and multiplexers from DC to 40 GHz for space, military and commercial applications; cellular base station receive and transmit filters and duplexers for GSM/AMPS and DCS/DCN/PCS systems and subsystems in standard rack-mount or custom configurations.

Fujitsu Compound Semiconductor Inc. **1106**
San Jose, CA

B. Utter, M. Adamo, P. Martin, T. Downing, S. Mason, Y. Hasegawa

GaAs FET power transistors, low noise HEMT devices, and GaAs MMIC and MIC devices for wireless applications.

Fujitsu Microelectronics Inc. **1500**
San Jose, CA

A broad RF product line for the rapidly growing wireless mobile market, including phase-locked loop ICs, piezo-electric SAW filters, prescalers, power management switches, mixers, amplifiers and D/A converters; and a leading-edge semicustom silicon-based RF design capability providing a low risk, high integration, short-time-to-market development approach.

Furon **1231**
Hoosick Falls, NY

PTFE/woven glass microwave laminates for high frequency commercial and military applications.

Future Electronics **1409**
Montreal, Quebec, Canada

Rob Harper, Emil Alexov, Lothar Krause, John Souza

A broadline international distributor specializing in RF and microwave components; the company supports amplifiers, filters, mixers and oscillators in addition to complete synthesizer and baseband modulation requirements with DSP and microcontroller products.

Gamma-f Corp. **1028**
Torrance, CA

Manfred Stupnik, Gary Peale, Bob Terry

Feed components for VSAT systems; passive microwave and mm-wave components; filters, diplexer, OMTs, polarizer and waveguide assemblies; and design and manufacturing capabilities.

GBC Materials Corporation **848**
Latrobe, PA

Bill Golya, Dick Karr, Sharon Johnson

Glass and ceramic components, including subminiature ceramics, isostatically pressed and machined stock, alumina-loaded glasses, GBC 496 and other custom materials for various microwave applications; unique dual capability to offer both ceramic and glass raw materials and parts permits the supply of the ideal product for a specific application.

GEC-Marconi Materials Technology **1209**
Caswell, Northants, UK

Peter Dumbell, Mike Geen

Broad range of GaAs MMIC devices for RF and microwave systems; standard products include switches, amplifiers and ASICs in die or packaged form up to 20 GHz; foundry service available on MESFET and HEMT processes up to 40 GHz; represented in the US by DAICO Industries.

GEC Plessey Semiconductors **1446**
Scotts Valley, CA

RF and baseband ICs, including a complete chip set (ACE) for analog cellular phones, RF ICs for direct conversion pager applications, board and IC products for wireless LANs, and general-purpose ICs for RF applications from 400 MHz to 2.5 GHz.

GEL-PAK
Division of Vichem Corp. **410**
Sunnyvale, CA

V. Althouse, J. Beacham

Shipping and handling containers for GaAs FET, MMIC, semiconductors and wafer materials to aid in scribe and break, back grinding and lapping; device and substrate shipping media; carriers for presentation to automatic die attach and/or pick-and-place equipment; fast turnaround for R&D prototypes; and conductive packaging for ESD protection.

General Microwave Corporation **813**
Amityville, NY

R. Schachter, A. Caggiano, T. Salina

Microwave PIN diode control components, including attenuators, modulators, switches, phase shifters, IQ vector modulators, coaxial mm-wave; microwave oscillators, including voltage-controlled, digitally tuned and dielectric resonator; and instrumentation, including automatic single- and dual-channel peak power meters, average power monitors, radiation hazard measuring systems and RF/microwave radiation badges.

GGB Industries Inc.,
Picoprobe Division **647**
Naples, FL

Greg Boll

Microwave probes (DC to 120 GHz) for probing on-wafer or packaged devices; calibration substrates and automatic calibration software; high frequency (DC to 67 GHz) probe cards with up to 120 points; low inductance power supply probes; high impedance (0.02 pf) active picoprobes for use on internal nodes; high performance microwave cables.

GHz Technologies Inc. **1016**
St. Laurent, Quebec, Canada

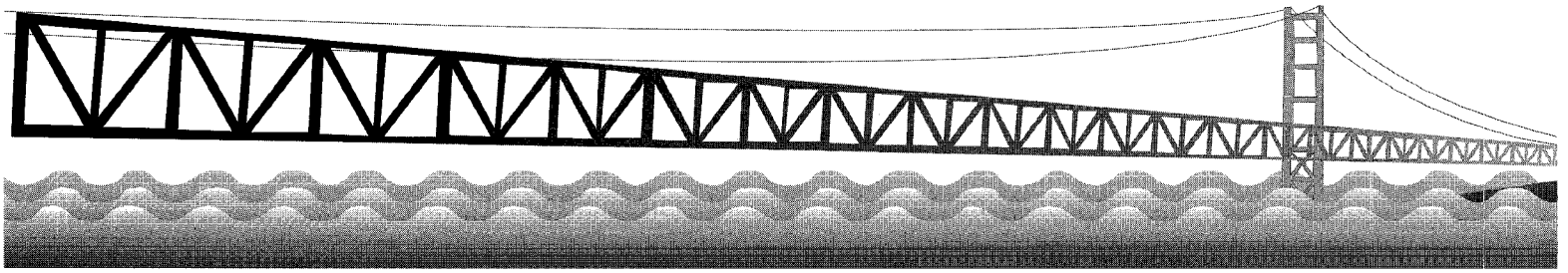
Z. Huszar, J. Lindover, J. Devlin, J. Tinkler, J. Miller, J. L'Ecuyer

Subsystems in the 400 MHz to 50 GHz frequency range for the telecommunication industry, which consist of multicouplers for AMPS, ETACS, NTACS NMT-900, IS-54, IS-95, GSM and PDC for cellular applications, as well as antenna coupling units for 13, 15, 18, 23, 26, 29 and 28 GHz communications networks.

GIL **1327**
Collierville, TN

Curt Zimmerman, Dave Barriell, Jerry Moran

Copper-clad laminates for wireless applications.



Gilbert Engineering **1011**
Glendale, AZ

R. Dentremont, J. Lokken, R. Shamblin, C. Baker, J. Zorzy

GPO and GMS blind-mate miniature microwave coaxial connectors; standard and custom designs are available in both hermetic and nonhermetic versions for backplane and multipin microwave applications; the company's GPO connector series is designed for ultra reliability in high density miniature microwave packaging.

Harbour Industries **1417**
Shelburne, VT

John Palasciano, John Pezzetti, Steve Dike

Coaxial cables designed for the microwave market with expanded PTFE dielectrics, strip braids, spiral strip shields and other special materials for low loss RF transmission, including low loss coax, strip braid coax, MIL-C-17 coax (QPL approved), low noise coax, communication network coax, high strength coax, triaxial cable and plenum coax.

Harris Farinon Components **1045**
San Antonio, TX

Charles Salsberry, Debra Diaz, William Fuller

Isolators, circulators and isoadapters in coax, waveguide and microstrip drop-in packages over the 330 MHz to 40 GHz frequency range; and a wide selection of standard products, as well as special options and custom designs.

Haverhill Cable & Mfg. Corp. **513**
Haverhill, MA

D. Kneeland, T. Kneeland, S. Raucci

Mil-Spec and commercial semirigid coaxial cable in various sizes, types and finishes; and handformable EasyBend II assemblies.

Herotek Inc. **1015**
Sunnyvale, CA

Cheng Lai, John Tatum, Ed Colety

Products include RF and microwave components, 0.01 to 50 GHz detectors, limiters, comb generators, FET low noise amplifiers, FET power amplifiers, PIN switches, multipliers, integrated downconverters, MIC subassemblies, harmonic mixers, and ferrite isolators and circulators; products are supplied for the military, industrial and commercial markets.

Hewlett-Packard **838**
San Jose, CA

RF semiconductor products for wireless communications, including new point-to-point digital radio transmit and receive modules, IMFETs and voltage-controlled oscillators; and semiconductor devices, mm-wave chips for point-to-point and DBS, Schottky and PIN diodes in SOT-363 packages, low voltage RFICs in SOT-363, transistors, pHEMTs for DBS and a 1.5 to 2.5 GHz chip set.

Hewlett-Packard Company **724**
Palo Alto, CA

The latest solutions in the area of high frequency EDA software, microwave component test, test systems and accessories, and microwave and RF design systems.

Hexawave Inc. **139**
Hsinchu, Taiwan

Joseph Chiao, Kenneth Hsu

L-, S- and C-band GaAs FETs in plastic or ceramic packages; SPST and SPDT MMIC switches; 1 to 3 W power modules for L- and S-band applications; and OEM and/or ODM service.

Hitachi Metals America **302**
Arlington Heights, IL

Matthew Kogano, Jeff Godley, Gentaro Kotani

Microwave components for cellular, PHS and PCS, including isolators, circulators, power splitters, multilayer chip components, splitters/combiners, couplers, transformers, SB mixers, DB mixers, low-pass filters and antenna switches; ferrite cores, including MnZn and NiZn; chip bead filters; and ISDN transformers.

Hittite Microwave Corporation **327**
Woburn, MA

Norm Hildreth, Brian Bedard

MMIC and surface-mount mixers, switches, variable attenuators, amplifiers and VCOs; custom-designed MMICs and multifunction assemblies; and low cost mixers and TR switches in eight-lead SOIC packages for commercial applications.

HTA Photomasks **1514**
San Jose, CA

Ken Caple, Lee Anderson, Phil Melen, Bill Kiba

A full-service photomask company with pattern generation and step-and-repeat capabilities; photomasks for hybrids, thin-film circuits, semiconductors and microstrips; photomasks imaged on high resolution emulsion, chrome, iron oxide and aluminum; mask services are complemented by the CAD Services group.

Huber + Suhner Inc. **715**
Essex, VT

Michael Wisner, Anthony Tobacco

ISO 9001-certified facility stocks high quality RF connectors, antennas and components manufactured in both the US and Switzerland; in addition to high volume standard products, the company manufactures custom antennas, cable assemblies, EMP protectors and connectors for demanding cellular and PCS applications.

Hughes Aircraft Company **1006**
Los Angeles, CA

HYBOND **1502**
Escondido, CA

Wire bonders (ultrasonic, thermosonic, wedge, ball); die bonders, including laser diodes; peg bonders (insulated wire for hard disc assembly); and dynamic force measurement instruments.

IC WORKS **1510**
San Jose, CA

Roy Richards, Angel Atondo, Mike Class, Rich Miller

RF integrated circuits are built in the company's CMOS and BiCMOS fabrication facility located in San Jose; products include phase-locked loop, linear amplifiers and other RF building block circuits in the 500 MHz to 3 GHz frequency spectrum; product families include frequency and timing generation circuits.

Input Output Industrial Co. Ltd. **245**
Hsin Tien City, Taipei, Taiwan

Vicky Wu

BNC, TNC, TWINAX, N, mini-UHF, SMA and fiber-optic products; OEM welcome.

Inter-Continental Microwave **915**
Santa Clara, CA

Werner Schuerch, Andrea Wong, Cathy Davidson, Pablo Cortes, Lisa Dececco

Microwave test fixtures and automatic device handling systems; standard product library contains more than 1000 package designs; custom designs of both manual test fixtures and automatic test systems are available.

International Manufacturing Services Inc. **1002**
Portsmouth, RI

Nils Attemann

Chip resistors and attenuators; new surface-mount thin-film 10 GHz attenuators in 0.080" × 0.050" size; thick- and thin-film surface-mount chip resistors in sizes from 0.03" × 0.02" to 0.36" × 0.14"; thick-film chip resistors for epoxy and wire bonding in hybrid circuit applications; resistance values from 0.022 Ω to 2000 GΩ and power rating to 10 W; engineering kits are also available.

Ion Beam Milling **846**
Manchester, NH

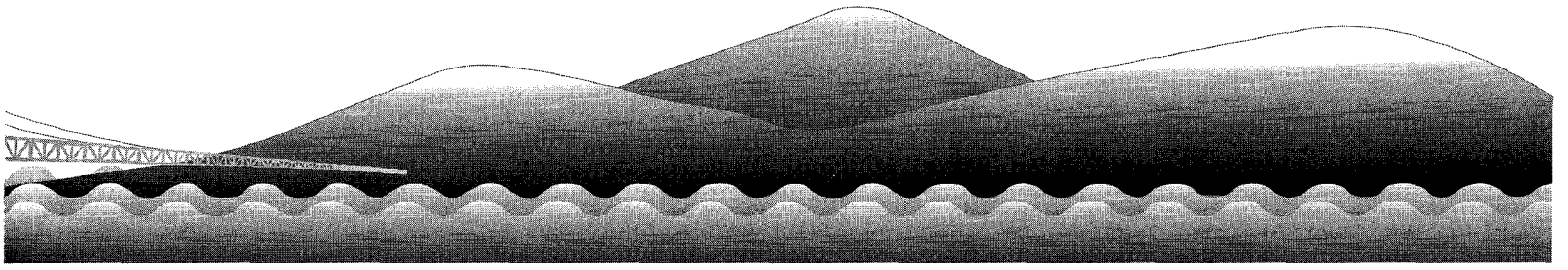
R. Quagan, J. Kelley, J. McDonnell, G. Quagan

Custom metalized substrates (resistor and conductor), microwave ICs (planar R, L and C integration); YIG and SAW circuits, discrete thin-film resistor chips; thin-film chip inductors, thin-film chip attenuators; chip carriers and mother boards; diamond dicing (one-half mil. tol); contract photolithography (1.5 mm); and custom ion beam milling services.

JFW Industries Inc. **548**
Indianapolis, IN

Mark Burton, Joetta Walker, Jennifer Rieger, David Mikels, Simon Watkins

Attenuators, RF switches and test systems; new products include attenuators, switches, power dividers and hand-off simulation systems in the 800 to 2200 MHz frequency range.



Johanson Dielectrics Inc. **1027**
Sylmar, CA

Tom Fatica, Bill Heintz

LASERtrim® laser-tunable RF capacitors for VCO tuning, filter tuning and impedance matching at 300 MHz to 2 GHz; high Q NPO wireless surface-mount MLC capacitors featuring ESR and Q performance similar to porcelain capacitors at a much lower cost; high voltage surface-mount MLCs (500 to 5000 V) ideal for line surge protection and filtering applications; single-layer microwave capacitors suited for RF multichip module applications; miniature 0402 and 0603 size MLCs.

Johanson Manufacturing Corporation **1128**
Boonton, NJ

Pete Erins

Variable capacitors, air dielectric and ceramic types; microwave tuning elements; and fiber-optic ferrules, fiber-optic connectors and VAC® variable attenuator connectors.

John Wiley & Sons Inc. **318**
New York, NY

Steven Elliot, George Telecki

A diverse selection of college texts, professional, reference, and trade books and journals.

Johnson Components Inc. **1406**
Waseca, MN

G. Pollack

The company, formerly E.F. Johnson Components, manufacturers a full range of quality RF subminiature connectors with SMA, SMB, SMC and MCX interfaces; subminiature connectors are designed to meet the electrical and mechanical performance specs of MIL-C-39012; a broad line of electronic hardware products, spacers, variable capacitors and tube socket also are manufactured.

K&L Microwave Inc. **706**
Salisbury, MD

C. Schaub, J. Price, P. Leo, H. Aikins

Components and subsystems satisfying requirements from 3 kHz to 40 GHz, including a full selection of microwave and RF filter, ceramic, dielectric resonator, wireless, tunable, solid-state and subassembly products.

Kaman Instrumentation **1130**
Colorado Springs, CO

Terry Dillahunty, Bruce Miller

Fully annealed stainless steel, hermetically sealed, all-welded, EW class cable assemblies that meet MIL-T81490 type II, class 2 specifications for semi-flexible construction.

Karl Suss America Inc. **647**
Waterbury Center, VT

D. Place, B. Jamison, B. Most, B. Heath, R. Williams, J. Barry

Manual, semiautomatic and full automatic microwave probing equipment and accessories, including manual and programmable probeheads, manual and motorized microscope movements, DC to W-band probes, microscopes, microwave and thermal chucks, localized environmental chambers, light-tight enclosures, isolation tables, calibration substrates, automatic calibration software, pattern recognition, material handling and laser cutters.

KDI/triangle Electronics Inc. **1123**
Whippany, NJ

C. Schraufnagl, R. Hartwig, T. Braviak

Attenuators, couplers, detectors, discriminators, dividers, filters, duplexers, levelers, limiters, mixers, upconverters, modulators, oscillators, phase shifters, resistors/terminations, diode switches, amplifiers, hybrid microelectronic circuits and custom products.

KMW Inc. **1524**
Santa Fe Springs, CA

Anthony Simmons, Karen Bolton

High quality products at the best price; major product lines are coaxial switches, directional couplers, cellular BPFs, duplexers, W/G components, combiners/dividers, LC filters, subsystems, cable assemblies and connectors; custom solutions are available.

Krytar Inc. **820**
Sunnyvale, CA

Don Yoshii, Corrine Williford

High performance ultra-broadband directional couplers, directional detectors, Schottky detectors, planar doped detectors, 90° and 180° hybrid detectors, two- and four-way power dividers, and terminations.

KW Microwave Corporation **411**
Carlsbad, CA

Richard Crabtree, Shukdev Tantod, Dhiru Tantod, Olivia Rodriquez

Over 22 years of experience manufacturing RF/microwave filters, switch filters, multiplexers, diplexers, PIN diode control components, GPS low noise amplifiers and pre-amplifiers, active/passive multipliers, and ferrite circulators and isolators for both commercial and military markets.

Kyocera America Inc. **510**
San Diego, CA

Ceramic IC packages, including metalized parts for RF and microwave applications and multilayer cofired products, such as sidebraze packages, chip carriers, flatpacks, hybrids, PGAs, MCMs and thin-film products; in addition to package manufacturing, the company also offers in-house subcontract IC assembly.

Lark Engineering **1202**
San Juan Capistrano, CA

Linda Parrish, Tim Baier, Raphael Lam

RF and microwave filters, including ceramic filters, surface-mount filters and miniature LC filters for applications in wireless communications, test equipment, and both airborne and radar systems with frequency ranges of 100 kHz to 18 GHz; production facilities are organized to handle everything from engineering prototypes, small lot fast turnaround to long run, high volume contracts.

Lemo RF **247**
Santa Rosa, CA

I. Bhawnani, C. Taylor

High performance, custom-designed microwave/mm-wave coaxial connectors, including 18 and 26 GHz SMAs, 3.5 mm, 2.92 mm, 2.4 mm, 1.85 mm and other special application types; low cost self-latching 50 and 75 Ω subminiature connectors for frequencies up to 4.8 GHz, as well as other miniature coaxial connectors featuring the push/pull latching system.

Litton Airtron **926**
Morris Plains, NJ

High power microwave components and subassemblies, flexible and rigid waveguide components and assemblies, ferrite devices, filters, microstrip and slotted array antennas, and GaAs substrates for RF applications.

Litton Solid State **926**
Santa Clara, CA

Custom multifunction assemblies for radar, electronic countermeasures, communications, missile and space systems; engineering and manufacturing capabilities include GaAs devices, MMICs, amplifiers, oscillators and other components.

LogiMetrics Inc. **914**
Plainview, NY

Murray H. Feigenbaum, Jerome Deutsch, Michael Yantz

TWT amplifiers and EMC test systems, which operate over the frequency range of 0.5 to 50 GHz, CW and pulse at power levels from 1 W to 20 kW; these products are used in military and commercial applications for ground or airborne platforms; other products include transmitters for wireless applications and satellite communications.

Logus Microwave Corp. **1516**
West Palm Beach, FL

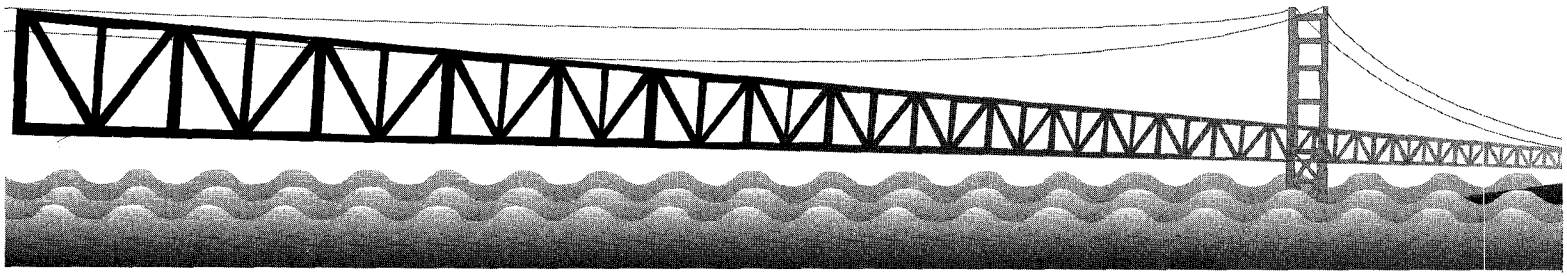
George Hack, Steve Hack

Electro-mechanical switches covering the full spectrum from IF and RF through multimeter microwaves; SPDT, DPDT transfer and SPMT switches are offered in many styles for waveguide, ridge-guide and coaxial transmissions; thousands of standard configurations or custom designs made to customer specifications are available.

LPKF CAD/CAM Systems Inc. **135**
Beaverton, OR

Garth Eimers, Bill Boggs, Bob Ritter, Hans-Erich Plock

Systems and products for the fabrication of prototype circuit boards; no caustic chemicals are used in any products, including thru-hole plating.



M-pulse Microwave **1301**
San Jose, CA

B. Long, G. Coonce

Standard, semi-custom and custom RF and microwave diodes and NMOS capacitors, including silicon PIN/NIP, abrupt and hyperabrupt varactors; Schottky diodes, including biased and zero-biased detector diodes, ring quads, and mixing and guard ring (hybrid) Schottkys for general-purpose wave shaping; and NMOS capacitor chips and planar tunnel diodes.

M-Wave **536**
Bensenville, IL

See Poly Circuits & PC Dynamics

M/A-COM **606**
Lowell, MA

RF, microwave and mm-wave devices, components and subsystems for wireless communications, including applications in cellular telephones and networks, wireless local area networks, telemetry and remote gathering applications, wireless local loop, interactive CATV, vehicle sensors and mobile communications; and for defense systems, including applications in electronic countermeasures, radar surveillance and missile guidance, as well as semi-insulating GaAs substrates and ICs used in high frequency applications.

Maryatt Technologies Inc. **1532**
Sunnyvale, CA

M.B. Maryatt, C.J. Maryatt, S. Maryatt, S. Butcher

Hermetic laser welding and package engineering; production package sealing, fine and gross leak testing per MIL-STD-883; microwave package fabrication, feed thru installation utilizing both solder seal and laser welding sealing technologies; laboratory certified MIL-Q-9858 and MIL-I-45208, and ESD safe.

Maury Microwave Corporation **935**
Ontario, CA

M.A. Maury, J. Adamson, B. Pastori, D. Smith, G. Simpson

Precision DC to 110 GHz microwave instruments and components, including the automated tuner system and its ancillary low noise microwave amplifier and amplifier converter for broadband low noise amplification, the universal transistor test fixture and a transistor bias supply for safe FET and bipolar device biasing; 10 to 2047 MHz, 50 ms noise figure meters, the noise frequency extender, solid-state noise generators and the noise calibration system; metrology grade sliding terminations and connector gages; and coaxial, waveguide and millimeter calibration kits for current state-of-the-art vector automatic network analyzers.

Merrimac Industries Inc. **807**
W. Caldwell, NJ

A. Ramsdon

Power dividers, quadrature hybrids, hybrid junctions, phase shifters, attenuators, directional couplers operating at frequencies up to 65 GHz, mixers, I/Q products operating at frequencies up to 18 GHz and case-free devices for MMIC circuits.

Metelics **232**
Sunnyvale, CA

J. Godbout, F. Kwan, C. McAllister

Microwave diodes and components, including Schottky barrier, PIN, tunnel, step recovery, tuning and limiter diodes: diodes; MIS capacitors; detector modules; switches; and microstrip assemblies.

Methode Electronics Inc., East **1506**
Willingboro, NJ

N. Frock, J. Mulcahy

Printed circuit board materials for RF and microwave applications, and heavy metal-back circuits with plated-thru holes.

MIC Technology Corp. **1229**
North Andover, MA

B. Mitchell, K. Callery, M. Barna, M. Doherty

Passive circuit solutions for the microelectronic industries, including PIMIC™ process technology that provides high frequency chip interconnect and packaging solutions by incorporating traditional discrete components in a solid-state approach; and RF, microwave, digital and mixed-signal environments accommodated in thin-film multilayer designs.

MICA Microwave Corporation **1419**
San Jose, CA

R. Wood, B. Campbell, F. Mills, N. Khayat, A. Campbell

RF and microwave ferrite devices; coaxial, drop-in, MICA-PAC surface-mount circulators and isolators for cellular, PCN, INMARSAT/GBS, LOS and COMSAT/SATCOM applications; microwave detectors (tunnel, biased and zero-biased Schottky) and limiters for RF to DC/video interface and power protection.

Micro-Chem Inc. **1441**
Santa Clara, CA

L. Matts, T. Selski, J. DeSerrano, B. Collins

Stripline microwave and rigid ground plane PTFE circuit boards, and chemically milled thin-metal parts for the microwave and telecommunications industries.

Microelectronic Packaging America **1505**
San Diego, CA

O. Ewing, B. Joly, M. Lynch

High temperature co-fired ceramic (HTCC); low temperature co-fired ceramic (LTCC); RF and microwave, government/military, high speed digital and medical packages; ceramic lids; and thick-film substrates (up to 12 metal layers).

Microelectronics Ltd. **1117**
Rishon Le Zion, Israel

J. Golany

Wide range of dielectric and sizes of MLC ceramic and porcelain capacitors, and medium and high power ceramic capacitors; all fixed and leaded capacitors available in nonmagnetic termination; wide range of glass, air and sapphire dielectric trimmer capacitors; air dielectric trimmer capacitor sealed to withstand 40 psi for adverse environmental conditions; custom-designed fixed and variable capacitors for special applications; and mechanical tuning devices and high precision Swiss-type screw machines mechanical parts.

Microelectronics Technology Inc. **511**
Hsinchu, Taiwan, ROC

P. Chen, A. Yen, L. Chang

SATCOM products, including VSAT/SCPC ODUs, 2 W, C-band 2 to 40 W and 5 to 15 W Ku-band power amplifiers, and INMARSAT subsystems; and telecom products, including 8 to 23 GHz short haul digital radios and fiber optical terminal equipment.

Micro Lambda Inc. **1049**
Fremont, CA

R. Leier, J. Nguyen, D. Suddarth

YIG-based, phase lock sources; PC board-mount and miniature oscillators for commercial applications; YIG-tuned oscillators, 500 MHz to 40 GHz filters and multipliers; and subassemblies and integrated products for commercial and military applications.

MicroMetrics Inc. **1201**
Londonderry, NH

D. Langan, J. Morgan, F. Gilligan

RF and microwave diodes for military and commercial applications, including SEDs, tuning varactors, PINs and NIPs, MIS chip capacitors and new tantulum nitride thin-film resistor chips.

Microsource Inc. **1244**
Santa Rosa, CA

M. Lampenfeld, C. Antel, L. Forant, J. Meyers

YIG-tuned components, including 0.5 to 26.5 GHz low phase noise oscillators, YIG filter oscillators; 0.5 to 26.5 GHz bandpass filters (single to multiple stages, 10 to 600 MHz bandwidths); band reject filters; multipliers; synthesizers; narrowband to multi-octave, integrated subsystems; receiver front ends; and up/downconverters.

Micro Substrates Corp. **201**
Tempe, AZ

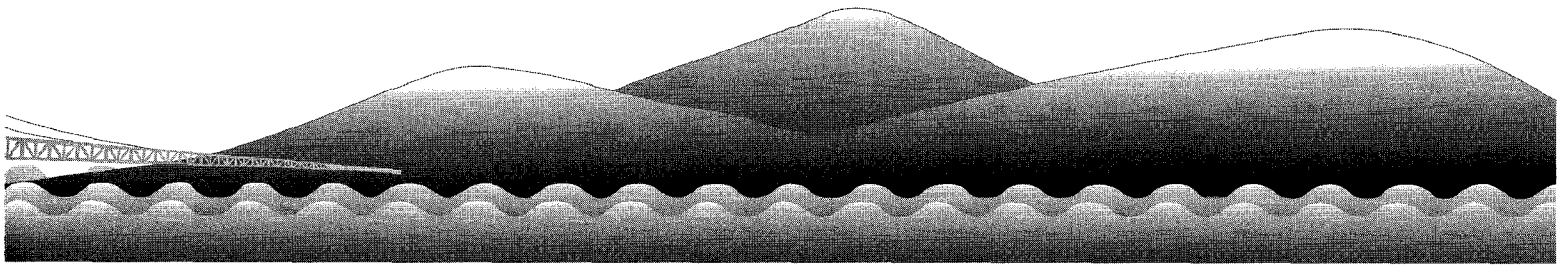
R. Panicker, B. Griffin, B. Greenman, E. Bailey, M. Hyslop

VIA/PLANE™; ceramic substrates with tungsten copper; solid, filled vias for microwave integrated circuit applications; MCM-D and planar thin-film magnetic heads; and VIA/PAK™ surface-mount ceramic packages for oscillators, amplifiers, switches and optoelectronic modules available in leaded and bump grid array, which serves as an affordable MMIC packaging solution.

Microwave Applications Group **224**
Santa Maria, CA

C. Boyd, W. Hord, T. Janzen

Microwave ferrite phase control elements and related electronic control circuits; and electronically scanning antenna systems.



Microwave Development Company Inc. **910**
No. Andover, MA

J. Cook, P. Hocknell, M. Crittenden

One to 50 GHz waveguide components and subsystems, including filters, diplexers, couplers, Gunn oscillators, magic tees, circulators, output assemblies and terminations; double ridge and rectangular waveguide components for the military SATCOM and communications industry with emphasis on 13, 15, 18, 23, 26 and 38 GHz PCN microwave radios; tri-band communication and broadband, high power avionics systems; and coaxial filters and high power coaxial couplers and terminations.

Microwave Development Laboratories Inc. **429**
Natick, MA

E. Scollins, W. Berry

Waveguide adapters, assemblies, attenuators, bends, twists, corporate feeds, couplers, crystal holders, circulators, diplexers, filters, flanges, gaskets, SSB generators, hybrids, isolators, mixers, mixer diplexers, monopulse comparators, rotary joints, double ridge, phase shifters, power dividers, rotary switches, tees, terminations, transistions, waveguide tubing and windows.

Microwave Engineering Europe **1217**
London, England

K. Neighbour, K. Smith, B. Kirstine, J. Pomerantz, L. Vickers

A European technical journal for microwave and RF engineers covering design, product, test and engineering management, including components, test instrumentation, CAE/CAD and devices for use at these frequencies.

Microwave Printed Circuitry **423**
Lowell, MA

M. Casper, B. Deitz, C. Casper

Printed circuit boards for microwave applications using PTFE-based materials for both commercial and military programs; microstrip and bonded stripline in addition to heavy metal-backed boards; plated through holes on aluminum are also featured.

MicroWave Technology Inc. **1029**
Fremont, CA

B. Wilson, A. Herbig, A. Roberts, K. Renwick, T. Bush

Ultralinear modular amplifiers for cellular/PCS base stations, and GaAs devices and RF/microwave amplifiers to 30+ GHz.

Millitech Corporation **1138**
South Deerfield, MA

N. Deo, R. Huguenin, D. Dixon, A. Mathew, J. Lowe, D. Greenman, K. Durand

Millimeter-wave and submm-wave active and passive components, oscillators, mixers, multipliers, detectors, isolators, antennas, subassemblies and frequency extension units for mm-wave test applications, block downconverters and wideband receiving subsystems.

MilliWave **1316**
Diamond Springs, CA

J.C. Rosenberg, J. Young, P. Willis

Low cost components for commercial applications, including 900 MHz to 75 GHz ultra low noise amplifier assemblies, frequency multiplier assemblies with 12 to 77 GHz output frequencies; and up/downconverters assemblies, including LNAs, image reject mixers, LO buffer amplifiers and VCOs operating from 18 to 50 GHz.

Mini Circuits **936**
Brooklyn, NY

H. Kaylie, R. Kaylie, G. Kaylie, R. Stolz

Standard and specialized surface-mount and plug-in IF/RF and microwave components, such as frequency mixers, power splitters/combiners, amplifiers, attenuators, terminations, directional couplers, bias-tees, filters, limiters, frequency doublers, phase detectors, phase modulators, switches, drivers, transformers and VCOs.

Mini-Systems Inc., Thick Film Division **1010**
N. Attleboro, MA

P. Creter

Thick-film chip resisitors, and both standard and custom size attenuators with full back electrode metalization.

Mini-Systems Inc., Thin Film Division **1010**
N. Attleboro, MA

P. Solon

Thin-metalized substrates, circuits, resistor networks, chip resistors, chip attenuators, MOSCAPS and arrays.

MITEQ Inc. **517**
Hauppauge, NY

T. Heil, H. Kiiss, H.E. Kiiss, M. Kiiss, D. Krautheimer

One MHz to 50 GHz single- and multifunction components, including low noise amplifiers in moderate and ultrawide bandwidths; frequency sources, including cavity-tuned oscillators, VCOs, DROs and phase-locked oscillators; signal processing components, including mixers, mixer-preamplifiers, image-reject mixers, switches, PIN attenuators, phase shifters, limiters, discriminators, log amplifiers and multifunction assemblies.

Morgan Matroc, Unilator Division **1329**
Ruabon near Wrexham, Clwyd, UK

K. Linaker, B. Jackson, R. Brown, G. Finn, R. Ragonese

Ceramic dielectric components, including high Q materials with dielectric constants between 20 and 88; parts produced to customers' requirements, generally as pucks, coaxials or substrates, and tested 100 percent for frequency; and first class engineering and sales service to ensure satisfaction.

Motorola Communications Semiconductor Products Division **406**
Phoenix, AZ

D. Sundby, S. Baniszewski

Wireless products, including low power and high power discrete transistors, hybrid circuits for power amplifiers (modules), linear amplifiers (CATV) and monolithic integrated circuits (RFIC).

Multipak Inc., a subsidiary of EPI **1426**
Newburyport, MA

J. Matzen, L. Kasai, G. Mau

Critical function hybrid and custom-designed microelectronic packages; and high end engineering design support for tight-tolerance performance applications with the ability to accommodate short run orders.

MVS – Microwave & Video Systems Inc. **1212**
Danbury, CT

F.S. Parin, J. Parin, F. Groman

Broadband solid-state PIN diodes, multithrow reflective and nonreflective (absorptive) switches; 0.5 to 20 GHz switch filter/banks up to nine channels; microwave integrated assemblies; an extended range 0.3 to 20 GHz single-pole double-throw PIN diode switch; and a 0.5 to 18 GHz seven-channel switch/filter bank with low harmonic generation at +27 dBm.

Nagare & Co. Ltd. **1447**
Tokyo, Japan

H. Yamazaki

DC to 60 GHz microwave measurement cryogenic prober with a maximum temperature range of 4 to 423 K.

Neulink Division, RF Industries **446**
San Diego, CA

D. Catledge, H. Hill, L. Perlman, J. LaFay

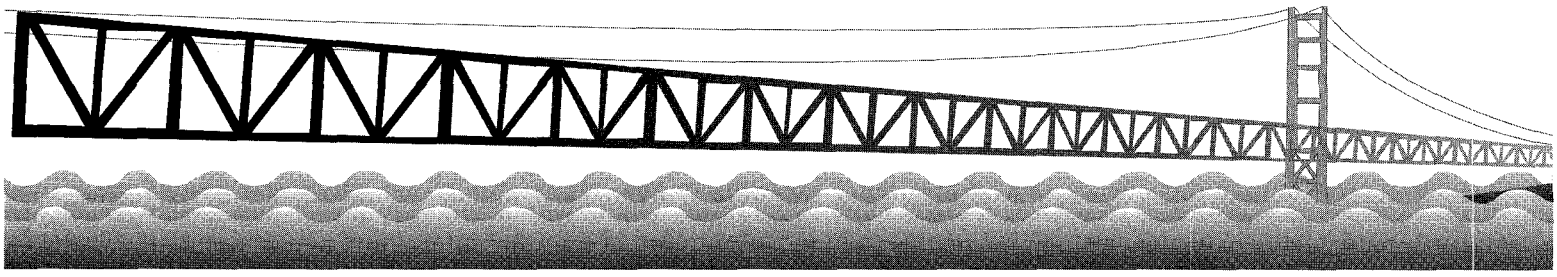
Wireless telemetry products, including transceivers, modems, network controllers, and RF and microwave connectors.

NOVA-COMM™ **1520**
Fairfax Station, VA

Joseph Chiao, Don Vennell, John Chen, Joyce Liu

Nearson Inc. carries the NOVA·COMM brand of RF/microwave connectors and cable assemblies manufactured by Chin Nan Precision Electronics Co. Ltd., Tainan, Taiwan; with 30 years experience in the field, the company can provide SMA, SMB, SMC, MCX, N, TNC and BNC plus special designs for cellular telephones and other wireless applications.

Oak Frequency Control Group **1047**
Mount Holly Springs, PA



Optotek Ltd. **329**
Kanata, Ontario, Canada

R. North, N. Lefebvre, D. Kennedy

MMICAD, an RF/microwave linear simulator for CAD/CAT applications, including frequency and parameter sweeping, user-defined models, network analyzer control, large library of manufacturers' data with an upgrade to version 2 becoming available in June 1996; and SALSA, software that develops large-signal transistor models for input into SPICE and other large-signal simulators with comprehensive model support.

Ortel Corp. **1423**
Alhambra, CA

T. Olson, D. Huff, D. Jimenez

Linear fiber-optic products for communication systems, including laser transmitters and photodiode receivers for broadband, wireless communications, satellite antenna remoting and microwave frequency transmission covering bandwidths up to 15 GHz.

Oscillatek **714**
Olathe, KS

B. Beck, M. Bowling

Temperature-compensated crystal oscillator (TCXO) technology; frequency sources, including TCXOs, VCXOs and OCXOs; and hybrid crystal oscillators for communications firms, instrument manufacturers, computer companies and electronic systems manufacturers in commercial and military markets.

Pacific Monolithics **1205**
Sunnyvale, CA

J. DiBartolo, E. Aske

Design and high volume manufacturing of standard low cost RFIC components for cellular, PCS and ISM applications from 800 to 2500 MHz with emphasis on power amplifiers, including the new single-supply series; and LNAs switches, VCOs and attenuators.

Package Technologies Inc. **137**
Taunton, MA

Alternatives to traditional ceramic and plastic packages for RF-microwave and wireless applications, and to ceramic power packages

PC Dynamics **536**
Bensenville, IL

Precision PTFE-based microwave circuits for military, space and airborne applications; and in-house manufacturing capabilities, including doublesided, stripline, multilayer, prebonded metal-backed and circuit panels up to 12 feet in length for antenna applications.

Penn Engineering Components **138**
North Hollywood, CA

Components, tubing, flanges and castings.

Penny Technologies Inc. **1411**
Brooklyn, NY

J. Ferrugio, J. Sirmans

Design, development and manufacture of microwave filters, diplexers and time delay lines for PCS and cellular communication systems with technical support, including providing quick prototype work coupled with production runs.

Penstock, an Avnet company **1302**
Sunnyvale, CA

Northern California sales team

In-stock RF wireless components; parts inventory, including leading manufacturers, such as HP, Toko, M/A-COM, Motorola and National Semiconductor; and RF and microwave cable assemblies and amplifiers manufactured under the Avantek UTO and GPD brand names.

Peregrine Semiconductor Corp. **147**
San Diego, CA

Wireless communication ICs for use in applications up to 2 GHz fabricated with its proprietary UTSI® technology, an ultra-thin silicon-on-insulator CMOS process that offers significant advantages over conventional technologies in speed, power dissipation and integration.

Philips Technologies,
Airpax Protector Group **1410**
Cambridge, MD

R. Pinheiro, J. Favinger

Close toleranced, intricate multicavity hermetically sealed machined housings in a variety of metals to support the microwave telecom and military marketplace in an operation that is totally vertically integrated offering complete process from start to finish.

The Phoenix Company
of Chicago Inc. **1508**
Wood Dale, IL

Subminiature and microminiature coax connectors, coaxial contacts, assorted mounting hardware and custom cable assemblies for flexible, conformable and semirigid cable groups with post-molded, phase-matching and delay line capabilities.

Picosecond Pulse Labs **1012**
Boulder, CO

M. Van Pelt, J. Andrews

Low cost, broadband amplifiers with 28 ps rise time and 12 GHz bandwidth, and 15 ps rise time and GPIB pulse generators, as well as other coaxial components.

Poly Circuits **536**
Besenville, IL

Complete in-house manufacturing capabilities to produce cost-effective PTFE printed circuit boards for microwave applications, including doublesided, stripline, multilayer and mixed dielectric multilayer circuits; and the patented Flexlink® process for bonding circuits to metal heatsinks using a thermally and electrically conductive adhesive.

Polyfet RF Devices **1211**
Camarillo, CA

E. Greenbaum, S.K. Leong

1.5 GHz gold metalized power RF MOSFETs and silicon gate vertical and lateral DMOS with a P_{out} of 300 W and a V DC of 12.5 to 50 V for communications, cellular, manpack radio, TV and FM jammer applications.

Power Systems Technology Inc. **235**
Melville, NY

B. Yuruckso, W. Koprowski

The design and manufacture of 1 MHz to 3 GHz standard and custom-design solid-state high power amplifiers with output power levels from 2 W to multi kilowatts.

Precision Tube Co. Inc. **319**
Salisbury, MD

D. McNeil, C. Bogese, G. Nutter

Semirigid and flexible coax cable; and flexible and semirigid cable assemblies in both standard and custom designs, and coaxial delay lines; as well as exclusive US distributor and marketing agent for Spinner GmbH's Munich, Germany K-1 connector product line.

Q-bit Corporation **512**
Palm Bay, FL

G. Callaway, M. Rogers, F. Decker

Transistor power amplifiers, including feed forward intermod cancellation techniques offering excellent efficiency, temperature stability and intermodulation performance; base station receive amplifiers providing extremely low noise and very high intercept points; and RF feedback amplifiers constructed using a patented Power Feedback technique, and yielding low SWR and high dynamic range.

Qualcomm Incorporated **1312**
San Diego, CA

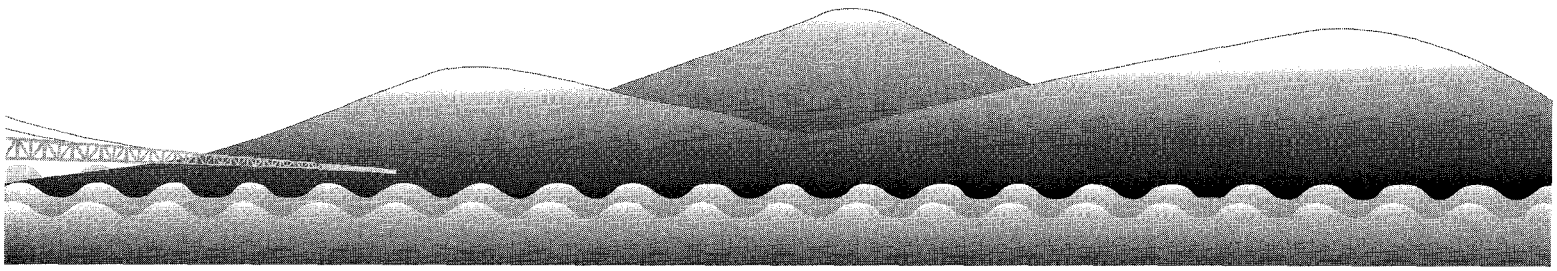
J. Bell, J. King, K. Rutland, G. Margard, J. Lebeau

ASIC products encompassing forward error correction (Viterbi decoders and Trellis codecs), voice compression (vocoders and evaluation boards), synthesizers (direct digital synthesizers, phase-locked loop frequency synthesizers and evaluation boards) and licensed CDMA ASIC technologies.

Questech Laser Services Corp. **316**
Dallas, TX

E. Case, K. Keough

Advanced laser machining of thick- and thin-film ceramic substrates, including hole sizes below 0.001" diameter; superior AlN and BeO matching capabilities; active and passive resistor trimming, including low value, tight tolerance and ratio trims; and diamond sawing, marking and serialization of all microelectronic materials with three- to four-day standard delivery.



R & K Company Ltd. **145**
Fuji-city, Shizuoka-Pref, Japan

T. Matsuda

GaAs FET power amplifiers, GaAs FET MMICs, SMD-DBMs, SMD-power dividers, SMD-quadrature hybrids, broadband power amplifiers, directional couplers, digital attenuators, analog phase shifters, vector detectors, solid-state switches and other DC to 300 MHz SMD products.

Raltron Electronics Corp. **1534**
Miami, FL

S. Cohen, G. Happ, P. Domanico

Frequency-controlled products, including quartz crystals and oscillators with emphasis on TCXOs, VCXOs and OCXOs; crystal filters, SMD crystals and resistor products, including chip resistors and SIP resistor networks; and DIP switches and connectors.

Raytheon Microelectronics **524**
Andover, MA

D. Maki, R. Pengelly, B. Von Rees

GaAs wafer fabrication and T/R module production, including MMIC chips for both military and commercial wireless LANs, cellular phones, DBS receivers, VSATs, PCS and mm-wave automotive applications.

Reeves-Hoffman **243**
Carlisle, PA

K. Stone

Quartz crystals, crystal oscillators, crystal filters and glass-to-metal sealed hermetic packages.

RelComm Technologies Inc. **1016**
Salisbury, MD

J. Tinkler

Design-enhanced surface-mount and connectorized low cost application-specific coaxial relays for the commercial and industrial wireless telecommunications industry operating from DC to 24 GHz, including SPST, SPDT transfer function and multiple-position relays.

REMEC Inc. **1318**
San Diego, CA

T. Mauk, B. Coleman, C. Hickerson, M. DeHart, R. Ragland, J. Giles, E. Ekaireb

RF/microwave assemblies and components for the aerospace telecommunications industry; supercomponents and subassemblies; integrated amplifier assemblies; up/down frequency converter assemblies; frequency multiplier and comb generator assemblies, switch filters, PIN diode products, channelized filter assemblies, filter and multiplexers, build-to-print services, and commercial, military and space-level applications.

Res-Net Microwave Inc. **903**
Largo, FL

M. Giacalone, N. Giacalone, R. Mayo, G. Mayo

Attenuators, terminations and resistors for the RF and microwave industry for space, military, commercial and medical applications; and a complete line of semirigid coaxial cable and cable assemblies fabricated with copper, aluminum or stainless steel outer conductor.

RF Industries, RF Connector Division **446**
San Diego, CA

H. Hill, L. Perlman, J. LaFay, D. Catledge

Coaxial connectors, including cable assemblies, connector kits, crimp and preparation tools, as well as new 7/16 DIN connectors, connectors to fit LMR-400 cable from Times Microwave.

RF Micro Devices **901**
Greensboro, NC

RF integrated circuits, including quadrature modulators, quadrature demodulators, LNA/mixers, IF amplifiers, attenuators and linear power amplifiers; and custom-designed products to optimize performance, power and size using GaAs, silicon and heterojunction bipolar technologies.

RF Prime Corporation **1428**
Sacramento, CA

Low cost state-of-the-art mixers, power splitters, filters, I/Q modulators and custom designs for the telecommunications industry.

Richardson Electronics Ltd. **313**
LaFox, IL

G. Peloquin, K. Connor, N. T. Costa, D. Moshiri, M. Olmedo

An ISO 9002 registered, international supplier offering an extensive inventory of RF and microwave semiconductors, inter-connect products, and RF and microwave amplifiers; and design-in support and numerous value-added services to address specific applications.

RLC Electronics Inc. **229**
Mount Kisco, NY

D. Borck, A. Borck, J. Seminoro, J. Radder

Switches, filters, attenuators, power dividers/combiners, couplers, terminations and other transmission line devices for military and commercial applications; and devices for surface-mount and wireless requirements with ISO 9002 certification.

Robinson Laboratories Inc. **311**
Nashua, NH

B. Robinson, Steve Robinson, F. Holt, T.J. Cole, E. Devita

Control components, receiver products, multifunction assemblies, broadband mixers (double balanced, image rejection and single sideband modulators), PIN diode switches, switch filters, millimeter switches, digital and voltage variable attenuators, and limiter detectors.

Rogers Corporation **717**
Rogers, CT

J. Carroll, M. Norris, C. Becker

High frequency, premium performance materials, including RT/duroid® 5000, RT/duriod® 6000 and RT/duroid® 6002; TMM®, RO3000™ and RO4000™; and polymer composite materials and components for applications in the communications, computer and peripheral, imaging, transportation and consumer product markets.

H. Rollet & Co. Ltd. **1532**
London, England

Hamon Medlicott, Peter Prior, Nancy Connor

Precision rigid waveguide, including thin-wall aluminum for satellites, INVAR for telecommunication filters, copper doubleridge for ECM and precision circular for dual polarized feeds; seamless flexible waveguide and assemblies and passive microwave components; isolators, circulators and coaxial adapters.

Roos Instruments Inc. **310**
Santa Clara, CA

T. Dobrino, M. Flatten, M. Roos, C. Rossi-Roos

Production test equipment built specifically for IFICs, RFICs and MMICs and optimized for high volume production environments; hardware and software designed to function as a complete system; and customer satisfied fixing requirements, as well as applicatioxn and engineering support.

Scientific Microwave Corp. **803**
Mississauga, Ontario, Canada

A. Saad, M. Saad

Passive microwave and mm-wave components, including filters, diplexers, circulators, hybrids, couplers, transistions and terminations for military, space and commercial applications; evanescent-mode ridge waveguide and planar structures; and custom production and consulting services.

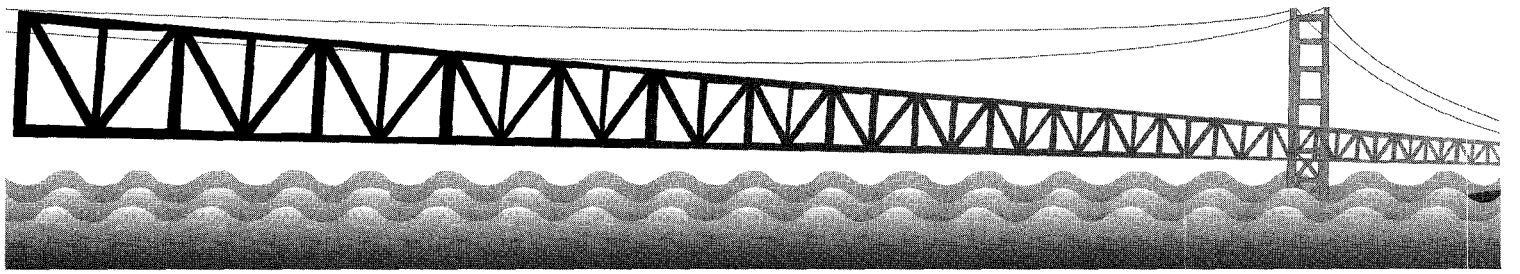
SCT **1336**
Golden, CA

Fully lightning protected products equipped with automatic RF bypass and monitoring equipment, including the REACH™ receiver front end, a highly selective, ultra low noise subsystem, which incorporates high temperature (HTS) filters and cryo-electronic low noise amplifiers, that is mast mounted near the base station antennas for the lowest possible receiver noise figure and that contributes less than 1 dB to receiver noise figure, dramatically increasing receiver sensitivity and expands cell site coverage; and HTS filters featuring low loss, low noise and high out-of-band interference rejection that contributes to increased call quality.

SG Microwave Inc. **202**
Kitchener, Ontario, Canada

S. Ghosh

Engineering support in the development and precision design of microwave subsystems that include multiple frequency and multiple function feed systems, high efficiency antennas, contoured beam and reconfigurable antennas, a wide class of microwave networks, filters and multiplexers, slotted waveguide arrays and related precision CAD software.



SGS-Thomson Microelectronics Inc. **624**
Montgomeryville, PA

G. Remetei, C. Lump

Two MHz to 4 GHz RF/microwave power transistors; hybrid RF power modules for analog/digital cellular, ISM, PDC, PCN/PCS applications; and discretes and modules utilizing HSB2 low voltage silicon technology for wireless hand-held and LAN applications.

Sherritt Inc. – Thermic Edge **448**
Fort Saskatchewan, Alberta, Canada

J. Ramsden, G. Evans

Aluminum nitride, a non-toxic ceramic material with high thermal conductivity metallized to customer requirements to solve thermal management problems in a variety of commercial RF and microwave applications; and proven metallization systems, including thin film, thick film, refractory and active brazed copper.

SHF design Microwave GmbH **850**
Berlin, Germany

M. Plotz, M. Martin, N. Lampert, R. Friedman

Ultra-broadband small-signal and medium power amplifiers optimized for pulse response for gigabit transmission systems (5, 10, 20 up to 40 Gbps); photoreceivers for high speed data transmission up to 40 Gbps, including monomode pigtail, photodiode and preamplifier with 2.9 mm coaxial output; and driver amplifiers tailored for optical modulators in gigabit transmission systems.

Siward International Inc. **1529**
Parsippany, NJ

High quality frequency control components, including crystals, crystal filters, oscillators, VCXOs, TCXOs, VC-TCXOs for through hole and surface-mount packages.

SMI Ceramics America Inc. **1405**
Santa Clara, CA

Electronic ceramic components, including Semifilt SC series DCT noise filters, SGM noise filters, RGM noise filters, dielectric ceramics for microwave frequencies, high frequency ceramic capacitors, coaxial-type resonators and ceramic resonators.

Sonnet Software Inc. **1113**
Liverpool, NY

J. Rautio, S. Carpenter, M. Ashman, R. Scaramuzza

Microwave electromagnetic analysis software, including em for planar circuits and antennas and Micro-Stripes, a three-dimensional simulator based on the efficient transmission-line matrix (TLM) method.

Sprague-Goodman Electronics Inc. **1250**
Westbury, NY

Trimmer capacitors (air, ceramic, film, glass, mica, quartz, sapphire); microwave tuners; metallized glass inductors and tuners; SMT trimmers and inductors; and RADIOCER ceramic RF power capacitors.

Stetco Inc. **450**
Franklin Park, IL

R. Souders, A. Ehredt, G. Murray

Surface-mount inductors, delay lines, customized RFI/EFI filters, filtered connectors, coaxial connectors and customized cable assemblies, surge suppressors and fiber-optic connectors.

Storm Products **309**
Hinsdale, IL

B. Barrath, M. Kotilinek

Low loss flexible cable assemblies through 40 GHz; durable, stable flexible assemblies; VNA assemblies; high performance semirigid cables and assemblies; delay lines; precision, low loss flexible coaxial cables from 0.050" diameter; and services, including semirigid cable assembly layout and routing; special shielding and armoring options; and phase/amplitude matching.

Superconductor Technologies Inc. **1120**
Santa Barabara, CA

J. Simmons, J. Madden, S. Durkin

Filters and switched filter assemblies based on high temperature superconductor (HTS) thin films; and integrated subsystems consisting of HTS filters and related cyrogenics for cellular and PCS wireless base stations.

SV Microwave **1438**
West Palm Beach, FL

W.C. Martin, J. Brooks, J. Morelle

RF and microwave connectors, adapters, cable assemblies, attenuators, terminations, hermetic launchers and radios right-angle connectors.

Synergy Microwave Corp. **906**
Paterson, NJ

A. Almeida

Signal processing components for applications in cellular and PCS equipment, including mixers, I&Q modulators, voltage-controlled oscillators, integrated phase-locked loops, frequency doublers, directional couplers, filters, signal splitters/combiners (0°, 90° and 180°), transformers, phase detectors, phase shifters and attenuator/switches, with emphasis on surface-mount packaging.

T-Tech Inc. **1313**
Atlanta, GA

J. D'Andrea, W. Gifford, R. Fisher

Hardware and software solutions for prototyping circuit boards and related applications using the Quick Circuit model 7000 milling and drilling machine, which uses the Gerber output from any CAD package to create an isolation mill path and to mill and drill prototype circuit boards quickly and economically.

Taconic Plastics Ltd. **809**
Petersburgh, NY

B. Smith, J. Daniels, B. Nurmi, M. Moroney

Copper-clad PTFE and woven glass substrates for commercial and military microwave printed circuit boards; and substrates for high volume commercial applications.

TDK Corp./MH&W International **1043**
Mahwah, NJ

R. Kiernan, G. Van Schaick

Stripline- and ferrite substrate-type microwave devices, circulators and connector-type isolators; waveguide isolators and circulators; and terminations, mixers and combiners.

Tecdia Inc. **942**
Mountain View, CA

N. Aguilar, Y. Kubota, A. A'Neals, N. Furuya

Single-layer parallel-plate chip capacitors capable of operating at frequencies up to 40 GHz, designed and manufactured for thin- and tick-film hybrid ICs; and high power bias tees, voltage regulators with sequence control and mini bias HICs.

Technical Research & Manufacturing (TRM) **1242**
Bedford, NH

A. Butts, A. Tirollo

Application-specific integrated modules (ASIM) and components, including beamformers, phase comparators, modulators, mixers, VCOs, power dividers/combiners, 90° and 180° hybrids, couplers, single-sideband modulators (SSM), image reject mixers (IRM), and quadraphase modulators and transformers from DC to 26.5 GHz in connectorized, flatpack, surface-mount or drop-in packages.

Techtrol Cyclonetics Inc. **148**
New Cumberland, PA

P.C. Bates, C.E. Sunday

Crystal oscillators, phase-locked oscillators, frequency multipliers, microwave sources and noise calibration systems at frequencies from 0 MHz to 18 GHz, as well as low noise, low spurious coherence, stability and technology assistance as value-added products.

Teledyne Electronic Technologies **1030**
Mountain View, CA

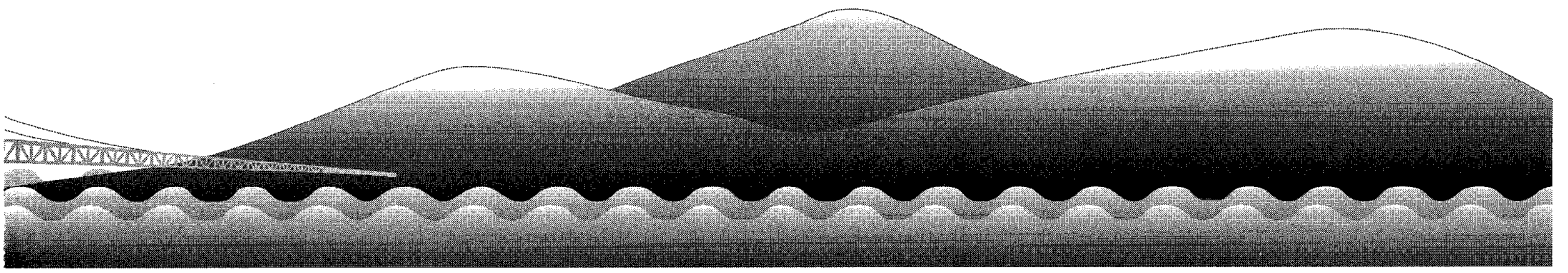
M. Lee, R. Ando, P. Gruver, J. Shimsky

RF/microwave components and assemblies for wireless and telecommunications, including plastic filters, integrated filter assemblies, delay devices and high power switches for cellular/paging base stations, GaAs MMIC power amplifiers and converters for Ku- and C-band VSAT terminals, and power amplifiers for 2.4 and 5.8 GHz WLANs.

Temic-Telefunken **102**
Santa Clara, CA

P. Mistry, J. Strohal, A. Hamilton

RFICs and discretes for telecom (PCS 1900, GSM, CT2 and IS-136), industrial, consumer (satellite TV receivers) and automotive markets, including a 900 MHz cordless phone demonstration.



Terrasat Inc. **1536**
San Jose, CA

J. Patel, J. Hecht, M. Convertino, G. Gazipura

Power amplifiers (drop-in and connectorized) with output power ranging from 14 dBm through 20 W, with frequency ranges starting at 5 GHz; 5 GHz to 20 GHz dielectric resonator oscillators (free running and phase locked); external reference as low as 5 MHz; and Tx and Rx modules for microwave radios and SATCOM.

***Test & Measurement World* Magazine** **103**
Newton, MA

Free subscription applications and sample issues of *Test & Measurement World* that provides technical editorial and product coverage for electronics industry engineers and managers responsible for product quality at the design, development, manufacturing or field service stage; and a communications/microwave test supplement.

Texas Instruments **736**
Dallas, TX

Baseband to RF systems, including complete DSP solutions for wireless communications, RFICs that are architecturally matched to baseband solutions, reducing chip count and decreasing product size and power consumption, and a seamless wireless communications technology platform that enables baseband and RF systems to be integrated quickly for fast ramp to production.

Texas Instruments, Microwave GaAs Products **736**
Dallas, TX

M. Tessaro, J. Martz, C. West, K. Blair, R. Lehmann, S. Nelson, C. Suckling, C. Pendaries, L. Howard, M. Blackwood, D. Shaw, J. Yelton, S. Hoshino

GaAs MMIC and discrete products, foundry services and ASIC designs for the microwave industry; MESFET, PIN diode, HFET and pHEMT products and foundry services; and modules to satisfy a wide range of microwave and mm-wave applications.

Thin Film Concepts Inc. **949**
Elmsford, NY

L. Weinman, B. Nicklin, J. Murphy, J. Bilinski

Thin-film circuits on alumina, AlN, BeO, quartz, silicon and kapton for microelectronics and commercial applications; metalization for almost any requirement, including TiW/Au, TaN/TiW/Au, TiW/Ni/Au, Cr/Cu, Cr/Cu/Au, TiW/Pt/Au and TiW/Pd/Au; ion-milled circuits for critical requirements; circuits died or lasered to custom specification, including edge wraps and through-hole metalized vias; and prototypes and production.

Thin Film Technology **1341**
Buellton, CA

G. St. Amour, G. Watkins, J. Wafer

Vacuum coating, substrate patterning, and custom tooling and mashing services.

Times Microwave Systems **330**
Wallingford, CT

D. Murray, R. Krimsier, D. Dubuc

RF coaxial cable and RF coaxial cable assemblies.

Toko America **1306**
Mt. Prospect, IL

Miniature inductors, filters and semiconductors for RF and wireless applications, including the world's smallest chip inductor, variable coils, LC, helical, SAW, dielectric and ceramic filters; and ICs for power supplies, voltage regulation and DC-to-DC conversion.

Tracor – AEL **643**
Lansdale, PA

C. Snow, J. Klepchick, G. Bolger, R. Shillady, S. Dittman, G. Astle, D. Martin, J. Schuchardt, M. Alzona, S. Roos

Antenna products, including spiral, horn, log periodic, cellular and PCS panels, microcell, tracking, and FSS and MSS antennas; and 0.1 to 50 GHz microwave integrated circuits, including custom front ends, up and downconverters, subassemblies, detector log video amplifiers (DLVA) and successive detection logarithmic amplifiers (SDLA) in both hybrid and monolithic form.

TRAK Microwave Corp. **1024**
Tampa, FL

Filter products, synthesizers, oscillators, passive signal processing components, circulators and isolators; the new modular model 8900 GPS clock provides precise time and frequency signals; and distribution amplifiers and other ancillary equipment.

Trans-Tech **1235**
Adamstown, MD

D. Ottey, E. Henicle, B. Bucheimer

Advanced technical ceramics.

Trilithic Inc. **225**
Indianapolis, IN

D. Distler, R. Binninger

RF and microwave components, including filters, switches, attenuators, terminations and surge arrestors, wireless data links for remote printing barcode reading, and GPIB and RS-232 controlled switching and control subsystems.

Trim-Tronics Inc. **228**
Cazenovia, NY

M. Tronser, J. Dowd, M. Purandare

Air dielectric and sapphire dielectric variable capacitors, microwave tuning elements, RF enclosures and specialty screw machine parts.

TriQuint Semiconductor **723**
Beaverton, OR

R. Christ

Commercialized GaAs for wireless communications productions, including standard products RFICs from 500 MHz to 2.5 GHz and a full-service foundry; models, wafer fab, test, packaging and product engineering services; and four stable processes with the capability for digital, analog and RF functions on the same chip.

TRW Inc. **435**
Redondo Beach, CA

Millimeter-wave and microwave products and services, including foundry services, custom design standard GaAs MMIC products, heterojunction bipolar transistor (HBT) amplifiers, high electron mobility (HEMT) power amplifiers and low noise amplifiers.

United Satcom Inc. **1424**
Deer Park, NY

T. Park

RF/microwave medium and high power amplifiers, including L-, S-, X-, C- and Ku-band power amplifiers up to 26 GHz with power levels of 0.5 to 100 W; a VSAT RF subsystem; narrow and wideband low noise amplifiers up to 26 GHz, cellular and PCS power amplifiers, and LNAs.

Universal Circuits Inc. **547**
Maple Grove, MN

P. Koosmann, T. Huss

Unique products on Teflon, Kapton and FR4 in large sizes and shapes for medical/imaging and radar ranging from 0.002" thick materials to multilayer, ensuring quality and on-time delivery.

US Microwave **1003**
Tucson, AZ

D. Brownstein, A. Brownstein

Custom-manufactured microwave circuitry and consulting services.

UTE Microwave Inc. **912**
Asbury Park, NJ

L. Nilson, W. Reddock, K. Johnson

Microwave ferrite circulators and isolators on coaxial, waveguide and drop-in configurations; iso-adapters; high power iso-filter detector assemblies for cellular, paging and PCS; high power waveguide circulators and isolators; UHF TV band units; multiport and high isolation devices; and high waveguide terminations.

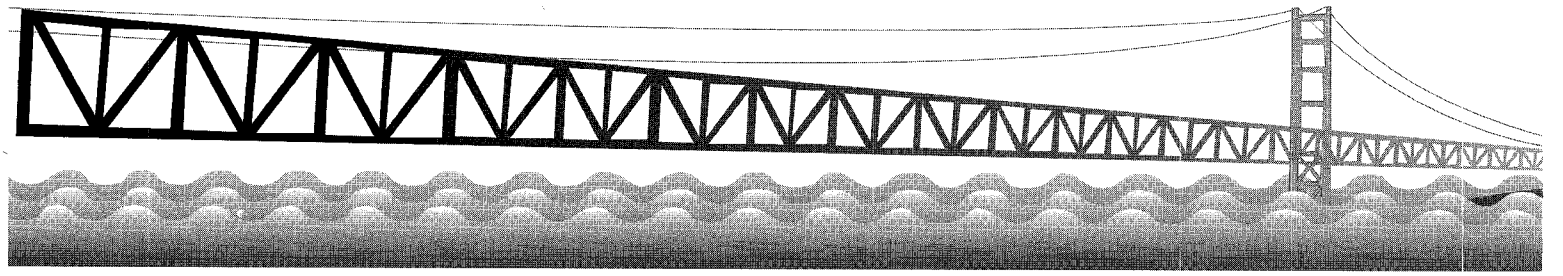
VCA Inc. **1427**
Rancho Palos Verdes, CA

M. Chen

Microwave passive components (OMT, filters/diplexers) and antennas (antenna feed horns and reflectors) particularly for VSAT and digital microwave link applications; and antennas particularly for VSAT and digital microwave radio.

Vectron Laboratories **718**
Norwalk, CT

0.01 Hz to beyond 2 GHz oscillators with sine or logic output in a broad range of configurations; low noise OCXOs available with excellent stabilities, TCXOs and VCXOs for phase locking, linear VCXOs, VCOs, hybrid crystal oscillators, and clock recovery and data regeneration products.



Vectron Technologies **716**
Hudson, NH

Frequency control products, including state-of-the-art clock and voltage control oscillators, SAW filters, and clock and data retiming units for telecommunications and data communication applications.

Voltronic Corporation **1331**
Denville, NJ

N. Perrella, S. Newman

Precision piston trimmer capacitors, DRO and microwave tuners, and single-turn surface-mount and PC-mount ceramic trimmmer capacitors.

Watkins-Johnson **505**
Palo Alto, CA

T. Burkhard, S. Hoover, J. Spear

Supplier of wireless infrastructure products.

WaveBand Corporation **546**
Torrance, CA

R. Chapman, L. Sadovnik, V. Manasson

The development and application of scanning millimeter-wave antennas and subsystems for implementation in imaging and radar systems for transportation, aviation and security markets.

Weinschel Corporation **806**
Frederick, MD

RF and microwave components that operate over the DC to 40 GHz frequency range, including fixed attenuators (many dB values with models capable of handling up to 500 W); variable attenuators; step attenautors (manual, motorized and programmable); terminations and loads; precision adapters and connectors (all types, including blind-mate and planar crown™ connector systems); directional couplers; and power splitters and dividers, as well as designing and manufacturing custom RF and microwave components for application specific requirements.

W.L. Gore & Associates Inc. **1005**
Newark, DE

D. Baechtel, R. Shaller, M. Schwerin, C. Lee, J. Buckley, G. Adler

Supplier of GORE-TEX microwave cable assemblies, flexible waveguide assemblies, EMI gasketing products and membrane radome products for use in military and commercial spaceflight, airframe and naval programs.

XL Microwave Inc. **1227**
Oakland, CA

D. Swift, D. Thornton, B. Artz, C. Bishop, P. Halvorson

Microwave and mm-wave CW frequency counters and source locking counters to 50 GHz, including power measurement, GPIB, DCoperation and a two-year warranty; sweeping current supply with 0 to 2 amp output or +1 amp output; and Gunn oscillator and YIG oscillator phase lock modules.