



1982 IEEE/MTT-S Exhibition Guide

ACRIAN 719 Cupertino, CA

A. Juodukis, G. Bishop, S. Huebner,
D. Herick, A. Woo

Solid state RF/microwave power semiconductor devices.

ADAMS-RUSSELL, ANZAC DIV. 122 Burlington, MA

M. Rosenzweig, N. Iocco, S. Pongratz, M. Milstein

RF and microwave components including low noise amplifiers, logarithmic amplifiers, mixers, switches, phase modulators, phase shifters, power dividers, hybrids, couplers, and transformers.

ADAMS-RUSSELL, MODPAK DIV. 122 Burlington, MA

M. Rosenzweig, P. Corrigan

The Modpak packaging system provides a unique RF shielded enclosure system which provides easy access to both sides of PC board and excellent RF shielding.

ADVANCED ABSORBER PRODUCTS, INC. 432 Amesbury, MA

M.A. Pennisi

AAP has available a broad range of microwave absorber including pyramidal, convoluted, multilayer, resonant, honeycomb, ferrite, hair and multicore. Conductive foam for packaging. Radome design and manufacture.

AERCOM INDUSTRIES 420 Sunnyvale, CA

J. Shields, L. Becker

Passive microwave components including filters, multiplexers, isolators, circulators, gain equalizers, harmonic phase shifters, limiters, detectors, amplifiers, lumped element devices and microwave integrated assemblies.

AIRTRON DIV. LITTON SYSTEMS, INC. 425 Morris Plains, NJ

J. LoSchiavo, A. Egger, J. Wassell,
J. Michalski

Flexible and rigid waveguide assemblies and accessories. High power circulators, couplers, filters, isolators, loads and switches. Planar array and monopulse antennas. High power RF subsystems.

ALAN INDUSTRIES, INC. 436 Columbus, IN

W. Kennedy, R. Cobb, B. Kennedy, R. Snapp, C. VanNatta, S. Kennedy

RF passive components, attenuators, terminations, and fuses.

ALPHA INDUSTRIES 118 Woburn, MA

J. Angus, D. Bengfort, M. Berenberg,
G. Birutis, N. Bishop, A. Blankenship,
M. Blustine, J. Brulotte, J. Bukowski, J. Caldwell, A. Cardiasmenos, T. Chudzik, J. Cotton, A. DeCarolis, J. Delconte, J. Diesso, G. Gill, R. Goldwasser, R. Gutierrez, E. Hokanson, G. Kamnitsis, K. Kelly, J. Korcuba, F. Leith, M. Madden, J. Putnam, A. Sakelarios, J. Siddique, R. Solomon, B. Stiles, F. Tarr, L. Viana

Millimeter Subsystems Division - millimeterwave components for electronic warfare systems; Semiconductor Division - silicon and GaAs devices for use at microwave and millimeterwave frequency both packaged and beamlead/chip configurations as well as microwave modules; Microwave Component Division - high speed ECL switches, switch modules with integral drivers, high speed switches, solid state limiters and solid state attenuators TRG Millimeterwave Component Division - millimeterwave antennas, components and instrumentation; Microelectronics Division - RF/microwave signal processing components, thick/film, RF modular amplifiers, solid state RF modular switches, switch drivers and custom thick/film analog and digital circuits; Trans-Tech, Incorporated/Subsidiary of Alpha Industries - microwave ferrites, garnets and dielectrics; FET Amplifier Operation - low noise GaAs FET amplifiers for military and commercial applications; FET Device Operation - low noise 1.0 and 0.5 micron GaAs FET devices and medium power devices; Central Microwave Company/Subsidiary of Alpha Industries - Gunn oscillators, VCO's, power gunn devices, and power FET amplifiers.

AMERICAN TECHNICAL CERAMICS 310 Huntington Station, NY

R. Blumkin, R. Wood

ATC manufactures UHF/microwave porcelain and ceramic capacitors for a variety of RF design applications. ATC 100 series Superchips™ feature ultra-high Q through microwave frequencies, low ESR and high dielectric strength.

AMPEREX ELECTRONIC CORP. 718 Hicksville, NY

C. Weyer, R. Carlin, A. Nehr, J. Salvay,
E. Hanson, R. Meyer, P. Rackley,
R. Koelzer, G. Turner, J. Hertia, G. Robin,
J. Cagel, D. Steen

RF, microwave and millimeter power devices for communication, radar and avionics. Products include GaAs FETs, magnetrons, bipolar transistors and circulators.

AMPHENOL NORTH AMERICAN DIV. BUNKER RAMO CORP. 416 Oak Brook, IL

D. Duris, E. Lagarto

The complete line of Amphenol® standard, miniature, sub-miniature and precision coaxial connectors; flexible and semi-rigid standard and custom cable assemblies; coaxial switches; fiber optic connectors.

AMPLICA, INC. 216 Newbury Park, CA

W. Wilson, J. Cole, M. Lampenfeld,
N. Pena, H. Lester

Low noise & medium power amplifiers from 250 MHz to 18+ GHz. Products include the Amplimodule™, modular wideband amplifiers and low noise subassemblies.

AMPLIFIER RESEARCH 431 Souderton, PA

D. Shepherd, B. Scammel, J. Greenwood

We will be exhibiting high power broadband RF amplifiers. Frequency range from 10 KHz to 1,000 MHz, power levels from 1 to 10,000W, antennas, TEM cells and accessories for RFI susceptibility testing. We will be specifically exhibiting our Model 10W 1,000, 10W, 1 to 1,000 MHz broadband amplifier.

AMPLIFONIX, INC. 406 Bristol, PA

E. Andrews

Modular broadband hybrid amplifiers to 2 GHz, RF hybrid attenuators.

ANAREN MICROWAVE, INC. 305 E. Syracuse, NY

L. Nielsen, L. Buckridge

Wideband stripline microwave components 0.03 to 18 GHz including new, small size power dividers, mixers, low cost caseless hybrids, and phase discriminators; EW subsystem elements including miniature digital frequency discriminators.

ANDERSEN LABORATORIES, INC. 518 Bloomfield, CT

R. Jacobs, D. Lowcavage, M. Adamo,
C. Smith, A. Comparini, R. Bernardo

Acoustic signal processing components and subsystems with emphasis on SAW devices including filters, delay lines; also a demo of UHF frequency synthesizer.

APPLIED ENGINEERING PRODUCTS 428 New Haven, CT

W. McNeil, P. Perry



Miniature & subminiature RF connectors, microstrip launchers, hermetic and standard cable assemblies.

ARISTOGRAPHICS CORP. 714
Randolph, NJ

N. Isacson, E. Harthaus, R. Cook, Mr. Berger

The Aristomat 100 is a precision automated coordinatograph designed to aid in producing high quality microwave artwork masters. This easy to use system has positioning accuracy of .0008", resolution of .0002", and repeatability of .0004".

ARRA, Inc. 517
Bayshore, NY
M. Geraci, B. Alimena

In addition to our complete line of microwave components - coaxial and waveguide, we will be introducing a new series of high resolution directly calibrated variable attenuators and phase shifters.

ARTECH HOUSE 319
Dedham, MA

W. Bazy, W. M. Bazy, B. Bossard, R. Briden, H. Ellowitz, E. Johnson, D. Heller, J. Webster, S. Pasqualucci, M. Ruzzano

Artech House chronicles the cutting edge of microwave technology with books which address the problems of the microwave engineer and scientist. Recent titles in computer-aided design, GaAs FET technology, VLSI and microwave testing.

AURIEMA INTERNATIONAL GROUP 339
New York City, NY

P. Storey, L. Sandberg, G. Clerici, P. Benet, L. Grant, R.C. Auriema

In-market technical sales services—through direct sales offices—for the international sales programs of microwave product manufacturers.

AUTOMATIC CONNECTOR, INC. 206
Commack, NY

L. Eichenseer, W. Pitcher, J. Morelli, E. Beavan, C. Pearson, J. Jensen, W. Ridgley, D. Shotwell, C. Kieffer, D. Kelly

Standard, miniature, subminiature and special RF coaxial connectors, RF switches, high performance cable assemblies, custom designed RF coaxial connectors, fiber optic connectors.

AVANTEK INC. 424
Santa Clara, CA

B. Goff, B. Reardon, B. Etheredge, R. Clark, P. Campbell, D. Wong, C. Cochran, S. Helling, F. Russell

Wideband GaAs FET amplifiers, dual-gate GaAs FET limiting amplifiers, TWT replacement amplifiers, YIG and varactor tuned oscillators, double-balanced mic-

rowave mixers and modular products in the AVANPAK™ miniature flatpack.

AYDIN MICROWAVE/AYDIN VECTOR 539
San Jose, CA

C. Weden, R. Blake

Single stage, multistage and cascaded solid state amplifiers from .5 MHz to 750 MHz. Power, limiting, and low noise GaAs FET amplifiers from 755 MHz to 18 GHz standard or custom designs.

CABLEWAVE MINIATURE PRODUCTS 219
North Haven, CT

S. Raucci, Jr., R. Avery, M. Caputo, F. Volpe

Coaxial connectors SMA/SMB/SMC, hermetic launchers, coaxial cable assemblies, coaxial cable (semi-rigid).

CALIFORNIA EASTERN LABS, INC. 215
Santa Clara, CA

J. Swan, B. Hawkins, L. Eya, N. Smith, D. Bunnell, S. Sando, Y. Tateyama

Complete line of NEC microwave transistors, GaAs FETs, and diodes including microwave diodes, electro-optic diodes and Tecdia MIC capacitors.

CAREY, McMAHILL, & ZERBE CO. 512
Garland, TX

E. Andrews, D. Carey, R. Dawson, P. Hannan, D. McMahonill, K. Zerbe

Representing: Poly Scientific Div. of L.I., Waveguide Engineering, Micro Dynamics and Nurad.

CIR-Q-TEL, INC. 546
Kensington, MD

P. Leo, R. Wainwright

Coaxial and waveguide filters - harmonic rejection, low pass, band pass, high pass, combline

COLEMAN MICROWAVE CO. 116
Edinburg, VA

G. Brinkley, K. Coleman, J. Coleman, N. Coleman

Microwave components for use in aircraft, radar and communications.

COMPAC DEVELOPMENT CORP. 531
Deer Park, NY

K. Bardon, K. Wicks

Manufacturers of low-cost, off the shelf, RFI shielded enclosures and accessories.

COMSAT GENERAL INTEGRATED SYSTEMS COMPACT ENGINEERING 129
Palo Alto, CA

J. Lindauer, L. Besser, G. Szentirmai, C. Holmes, H. Wong, A. Kapczynski, D. Rager, W. Bissett, S. Gische, V. Irving, P. Wagner, J. Blaschke, B. Siddon

Super-Compact, a new microwave circuit analysis and optimization program; Super-

Spice, a new general purpose analog circuit simulation program; Super-Filsyn, a new filter synthesis CAD program with interactive graphics; Auto-Art, a layout package which facilitates the semi-automated two-dimensional drafting of the microwave circuit layout process; Microwave Alignment Station, a powerful new system which directs alignment of MIC amplifiers, measures and displays s-parameters, power, and noise, without removing the device under test; Mama, a new program for measurement and microwave circuit analysis in the time domain.

COMPLEX CORPORATION 444
Marlton, NJ

S. Gordon, S. Chen

Complex manufacturers single layer parallel plate microwave chip capacitors with gold electrodes for T.C. and ultrasonic bonding and pretinned electrodes for solder reflow. Split electrodes and arrays also available.

CONNECTING DEVICES, INC. 502
El Segundo, CA

J. Dunbabin, C. Wirtz, R. Black

R. F. Connector & cable assemblies

DADEN ASSOCIATES, INC. 406
Laguna Hills, CA

D. Hook

Microwave filters 15 MHz to 26 GHz, coaxial, waveguide, or PC mounted; band pass, low pass, high pass, band reject; interdigital, combline, cavity, etc.

DEXCEL INC. 301
Santa Clara, CA

T. Duder, P. Tipon, S. Block

GaAs FET's: Low noise/small signal and power 2-20 GHz; Amplifiers: Broadband ECM/military 2-18 GHz.

DIELECTRIC LABS, INC. 315
Cazenovia, NY

R. Baker, D. Lupfer, J. Tinkler, L. Baker, L. Tinkler

RF/microwave high Q porcelain fixed capacitors and single wafer precision parallel plate ceramic fixed capacitors with widths to match the circuit stripline width.

DYNATECH/U-Z, INC. 133
Venice, CA

N. Renfrow, N. Feigenbaum, M. Okano, J. Hoffman, F. Bennett, W. Witkowski, K. O'Hare

Diverse product line of RF switches (SP2T thru SP10T), available with TTL driver, indicator circuits, termination and numerous circuit options. Component line includes power dividers, combiners, attenuators, couplers and filters.



EATON CORPORATION 119
ELECTRONIC INSTRUMENTATION DIVISION
Atlanta, GA

J. Gruber, G. McCarthy, H. Cooper, W. Pastori, G. Rothhammer, R. Papaieck

Microwave test equipment: spectrum analyzers, synthesized signal generators, noise figure instrumentation, power oscillators and amplifiers, A/C equipment, EMI/RFI instrumentation.

EEV, INC. 138
Elmsford, NY

P. Plurien, J. Wadkowski, B. Vyse, T. Soldano, I. Buick

Magnetrons including miniature, coaxial, strap and vane and millimeter types; travelling wave tubes; integrated microwave packages including PIN switches, noise sources, TRL, etc.

EIP MICROWAVE, INC. 117
San Jose, CA

R. Bush, J. Lurie, R. Loft

Automatic microwave/millimeter wave frequency counter; source-locking, CW and pulse, 10 Hz - 110 GHz.

ELECTROMAGNETIC SCIENCES 107
Norcross, GA

Ferrite switches, phase shifters, modulators, circulators and isolators; filters and equalizers as well as subsystems employing the above and other microwave components.

EMF SYSTEMS, INC. 526
State College, PA

J. Chernega, J. Chernega

EMF Systems standard products are microwave solid state oscillators, consisting of VCOs, crystal and phase locked oscillators, synthesizers and oscillator multipliers. We also supply associated circuitry such as linearizers, heaters, etc.

ENGELMANN MICROWAVE 132
Boonton, NJ

C. Schraufnagl, V. Caruso, H. Engelmann, R. Hartwig

Coaxial components, DC-18 GHz, stripline and oscillator products, subassemblies, including attenuators, terminations, couplers, power dividers, mixers, phase shifters, digital attenuators, diode switches, front ends, modulators and low noise cavity stabilized transistor oscillators.

EPSCO MICROWAVE 329
Westwood, MA

W. Coffin, W. Currier, J. Shalhoub

Model 2076 high power pulsed oscillator, Model EP250C CW signal source that guarantees 250 W of output power over a wide frequency range and Model EP5000L 500 to 5000 W peak power pulse source for calibration, component test and EMI testing from 925 to 1225 MHz.

EPSILON LAMBDA 633
ELECTRONICS CORP
Geneva, IL

R. Knox

Millimeter integrated circuits, subassemblies, millimeter oscillators, mixers, filters

EW COMMUNICATIONS, INC. 500
Palo Alto, CA

C. Flinn, K. Hanson, L. Niewoehner, A.M. St. John, R. Sanders, A. Yaconetti

Microwave Systems News, Defense Electronics magazine, The International Countermeasures Handbook and The Handbook of Digital Communications.

FILTRONIC COMPONENTS LTD. 136
W. Yorkshire, England

J. Rhodes, R. Gough, D. Chambers, B. Woodward

Filtronic will be demonstrating high performance combine and waveguide filters and multiplexers, broadband suspended substrate stripline filters and multiplexers, new IFM unit, crystal log video receiver, NMS 1 group delay test set.

FLANN MICROWAVE 644
Palo Alto, CA

B. Jones, E. McBride, R. Donahue, E. Jones

Millimeter wave test equipment.

FREQUENCY SOURCES INC. 422
Santa Clara, CA

L. Moore

Microwave components - active and passive

FUJITSU MICROELECTRONICS 438
Santa Clara, CA

E. Mirabella, S. Erickson, J. Cotsworth, B. Hampton, S. Murai, M. Fukuta

GaAs power transistors, bipolar transistors, GaAs microwave power amplifiers.

GAMMA-F CORPORATION 222
Torrance, CA

C. Goss, L. Alford, B. Terry

Standard waveguide harmonic rejection filters; custom waveguide band pass, band stop, high pass, and low pass filters; custom interdigital and combine filters; satellite receive-only components; standard and custom electro-formed microwave components.

GENERAL MICROWAVE 221
Huntington Station, NY

S.A. Rinkel, M. Wind, S. Hopfer

Featured will be new Model 478 automatic peak power meter, PIN diode switches, attenuators, modulators and RAHAM microwave radiation hazard meters.

W.L. GORE & ASSOCIATES 203
Newark, DE

M. Pierce, B. O'Brien, R. Haggard, J. Wellinger, W. Willey, M. LeGere, C. Carrol, R. Kauffman, R. Moorthy, G. Walter, T. Erickson

GORE-TEX® flexible microwave cable assemblies featuring low insertion loss (up to 26% less than .141" semi-rigid), shielding effectiveness equivalent to .141" semi-rigid, broadband performance (DC-26.5 GHz), excellent phase stability.

HERLEY INDUSTRIES 720
Lancaster, PA

L. Blatt, H. Kagan, R. Hess

High power microwave components, waveguide switches, dummy loads, directional couplers, antennas, phase shifters, microwave comparators, microstrip and stripline application, slot array feeds, rotary joints.

HEWLETT PACKARD COMPANY 723
Palo Alto, CA

RF & microwave measurement instrumentation including sweepers, signal generators, counters, synthesizers, spectrum analyzers plus advanced microwave components.

HONEYWELL, INC. 519
SPACEKOM MICROWAVE CENTER
Santa Barbara, CA

E. Speer, R. Griffith, M. Zepeda

Microwave and millimeter wave components, MIC and waveguide, 4 GHz - 110 GHz receivers, radiometers, subsystems.

HUBER + SUHNER AG 306
Herisau, Switzerland

M. Schefer, J. Heierli

RF and microwave connectors, cables, cable assemblies and passive components.

HUGHES AIRCRAFT COMPANY, 223
EDD
Torrance, CA

M. Talley, K. Larson, J. Nichols, C. Blake, P. Crandell, R. Martin, J. Kuno

C-band and Ku-band HPAs, instrumentation traveling-wave tube amplifiers, and millimeter-wave reflectometer.

INSULATED WIRE, INC. 626
Ronkonkoma, NY

A. Nixon

Microwave cable.

INTEGRA MICROWAVE 324
Santa Clara, CA

W. Schuerch, L. Johnson, D. Brown, B. Lear, R. Stevens

Microwave sweepers (2-40 GHz), mixer test set, VCO test set (2-18 GHz), frequency & power meter (2-18 GHz), YIG tuned filters (2-26.5 GHz); all instruments 488-BUS compatible.



ISOTRONICS, INC. 717
New Bedford, MA

*M. LoFrumento, J. Pinac, S. Overall,
J. Greenspan*

High reliability, all metal hybrid microcircuit packages.

ITT COMPONENTS 711
Devon, England

M. Robertson, R. Moore

High linearity ceramic packaged TWTs with power supply for 4, 6 and 11 GHz AM microwave radio links, miniature wideband TWTA for airborne operation, slimline power supply units for a range of metal-ceramic packaged TWTs, microwave sources and subsystems, SHF radio relay equipment, and semiconductor laser devices and modules.

JOHANSON MFG. CORPORATION 421
Boonton, NJ

E. Fagerlund, P. Fralia, K. Indorf

Variable capacitors, variable air capacitors, high voltage capacitors, thin-trim ceramic capacitors, high voltage quartz capacitors, variable ceramic capacitors, microwave tuning elements, seal-trim capacitors, and diode holders.

JOURNAL OF ELECTRONIC DEFENSE 319
Dedham, MA

*W. Bazy, W.M. Bazy, B. Bossard,
R. Briden, H. Ellowitz, E. Johnson,
D. Heller, J. Webster, S. Pasqualucci,
M. Ruzzano*

Journal of Electronic Defense Magazine, subscription and editorial information.

JUNCTION DEVICES, INC. 406
Westlake Village, CA

M. Asnes

Ferrite isolators and circulators, coaxial and waveguide, 200 MHz to 42 GHz.

KDI PYROFILM CORP. 332
Whippany, NJ

A. Arlin, J. Dowell, D. Stewart

Microwave resistive products including high and low power chip resistors and terminations; chip and coaxial attenuators; pillshape devices and networks.

KEENE CORP, CHASE FOSTER DIV. 211
Bear, DE

L. Girouard, J. Martin, R. Tull, T. Zawislak
"DiClad copper clad low loss laminates for the microwave industry; dielectric constant range of 2.0 to 10.5 with variety of claddings.

KEENE CORP. 433
RAY PROOF DIV.
Norwalk, CT

R. Barbour, B. Lawrence, K. Makowski

Anechoic chamber systems for microwave and millimeter wave test facilities, RF shielding systems to 100 GHz, turnkey installations.

KEVLIN MICROWAVE CORP. 231
Woburn, MA

J. Riley, E. Lattanzi, E. Lattanzi

R. F. rotary joints for operation from DC to 40 GHz; single and multichannel units operating at power levels up to multi-megawatts; a new dual channel rotary joint which operates from DC to 18 GHz on both channels; a complete line of subminiature RF connectors and components operating from DC to 40 GHz includes some components that are "easy-solder" connectors; sliding loads.

K & L MICROWAVE, INC. 212
Salisbury, MD

R. Bernstein, C. Schaub, W. Anthony

RF and microwave filters including high pass, low pass, band pass and notch filters; microprocessor controlled tunable band pass filters; miniature filters and combine filters.

KRYTAR, INC. 317
Sunnyvale, CA

T. Russell, C. Gentile

Broadband directional detectors, directional couplers and crystal detectors.

KW ENGINEERING, INC. 316
San Diego, CA

A. Brand, R. Hicks, J. Lawrence

Miniature microwave filters, frequency multipliers, multiplexers, switched filters and integrated subsystems.

LARK ENGINEERING, INC. 638
San Juan Capistrano, CA

W. Wheeler, F. Baier

Filters: Band pass, low pass, high pass, multiplexers, switch-filters, isofilters.

LITCHFIELD MICROWAVE 109
Campbell, CA

M. Litchfield

Detectors, limiters, diode switches comb generators.

LOCUS, INC. 526
State College, PA

W. Coyle, J. Hess, F. Thompson, E. Brem

Spread spectrum simulator for secure communications for time division multiple access satellite business systems and precision ranging and location for global positioning systems. The simulator is based on a direct digital frequency synthesizer and is capable of generating a variety of spread spectrum signals including PSK, FSK or OOK.

LOGIMETRICS, INC. 307
Plainview, NY

J. Deutsch

LogiMetrics manufactures solid state units (0.2-18 GHz), dual redundant 200 watt space shuttle communications amplifier, broadband automated susceptibility (EMC) generator and militarized amplifiers for ground, shipboard and airborne applications.

LORCH ELECTRONICS CORP. 318
Englewood, NJ

*J. Lorch, B. Scammel, H. Lorch,
J. Greenwood*

RF, IF and microwave signal processing components: mixers, power dividers, phase comparators, directional couplers, amplifiers, filters, digital & analog attenuators and phase shifters, TTL controlled switches.

LUXTRON CORPORATION 707
Mt. View, CA

J. Golin, D. Papoutsis, J. Slack

Fluoroptic thermometer, a microprocessor based electronic thermometer with electromagnetically immune fiber optic probe.

3M/ELECTRONIC PRODUCTS DIV. 535
St. Paul, MN

*L. Bishop, H. Bond, A. Nodland,
J. Cavanaugh, R. Goff*

Full range of precision tolerance teflon/woven glass and ceramic filled copper clad substrates with K values from 2.17 to 10. Available in a wide range of thicknesses.

M/A-COM COMPONENTS 336
Burlington, MA

*J. Powell, B. Virgil, D. Emerick, T. Rose,
P. Gayle, E. DeVita, J. Callahan, N. Brown,
N. Jansen, P. Martin, J. Corvino,
B. Moroney, D. Stelzer, P. Kennedy,
B. Knowles, R. Sheloff, C. Ducharme,
H. Howe, B. Ronis*

Microwave silicon and GaAs products; solid state circuits, sources, amplifiers; ferrites; high power control devices, subsystems; transmission line components; coaxial cable, connectors, adapters; millimeter wave products; antenna's earth stations.

MAGNUM MICROWAVE 331
Sunnyvale, CA

H. Soza, D. Fealkoff, G. Gram, S. Hospetler

Magnum Microwave will be showing double-balanced mixers for 19 KHz to 18 GHz, temperature cycled, magnum packed; varactor tuned voltage controlled oscillators housed in T08 packages range from .9 to 5 GHz; the V72T and V82T series which tune at less than 15 V.



MAST MICROWAVE 419 **Burlington, MA**

C. Theophile, F. Cooper, B. Donnelly

Rotary joints from DC to 40 GHz in waveguide and coax, single and multi-channel; passive waveguide components; double ridge components and precision cable assemblies.

MATCOM, INC. 644 **Palo Alto, CA**

B. Jones, E. McBride, R. Donahue, E. Jones

Representing: Toshiba, Flann Microwave and R & K.

MATERIALS RESEARCH CORP. 201 **Orangeburg, NY**

V. Borase, R. McPhillips, B. Styles, C. Smith, J. Grant, B. Coyle, S. Sefcik, J. Claybrook, L.A. Cambey

SUPERSTRATES[®] (99.6% alumina substrates), coated and uncoated; thin film materials - metals, alloys, evaporation sources and sputtering targets. New: FOCEST[™] high utilization target for MRC 942 sputtering system.

MAURY MICROWAVE CORP. 704 **Cucamonga, CA**

M.A. Maury, Jr., D.A. Smith, D. Payette, L.E. Willey

On display will be a variety of new products such as: Universal transistor test fixture for use in automated measurements, improved APC 3.5 sliding termination for use up to 34 GHz, complete line of 14 millimeter connectors and components utilizing the new MPC 14 connector (mate with GR900), two-port standard sets in coaxial and waveguide configuration for use as verification standards in automated measurements, calibration kits for automatic network analyzers, broadband noise measurement equipment, APC 3.5 connectors and components and a broad variety of coaxial and waveguide devices including adapters, couplers, tuners, etc.

MERRIMAC INDUSTRIES, INC. 130 **West Caldwell, NJ**

A. Cox, G. Tahimore, J. Blahosky, J. Capucci, J. Jackson, C. Tinch

Merrimac will exhibit a comprehensive line of IF and RF signal processing components covering DC-18 GHz. Also IF integrated assemblies and RF microwave integrated subsystems.

MICRO DYNAMICS, INC. 512 **Woburn, MA**

R. Redstone

PIN attenuators, diode switches, TRL's, thin film MIC

MICROLAB/FXR 640 **Livingston, NJ**

R. Vincent, J. Dowell, H. Augenblick, M. Bruno

Microwave coaxial and waveguide loads, switches, couplers, filters, power dividers, attenuators.

MICRO-NOW INSTRUMENTS 639 **CO., INC.** **Chicago, IL**

C. Arnow, W. Openlander

Model 705 MM sweep power supply which can be used with BWO heads covering 22-170 GHz; an optional IEEE 488 BUS option is also available for external computer control.

MICROPAC INDUSTRIES, INC. 721 **Garland, TX**

B. Holmes, L. Williams, G. Weger, P. Bratcher

Thick film and thin film substrate and power hybrids.

MICROPHASE CORP. 320 **Cos Cob, CT**

F. Parin, H. Schumacher, H. Cobb, W. Hoffman

Microwave multiplexers, filters, video detectors, detector log video amplifiers, microwave integrated assemblies up to 40 GHz.

MICROTECH, INC. 701 **Cheshire, CT**

J. McGregor, W. Hallock, B. Lear

Flexible and rigid waveguide assemblies and passive microwave components covering 1.12 to 40 GHz. Microtech works to customer and/or military specifications in addition to catalog items.

MICRO-TEL CORP. 122 **Baltimore, MD**

W. Brandt, R. Biller

An automatic precision microwave (.01-40 GHz) attenuation measurement system consisting of a broadband signal generator, a precision microwave receiver, frequency extenders and synthesizers.

MICROWAVES 544 **Rochelle Park, NJ**

W. Bojsza, S. Bearse, J. Browne, G. Roberts, H. Dolan, J. Matusow, K. Brick

MICROWAVE APPLICATIONS 429 **GROUP** **Santa Maria, CA**

D. Prigge, C. Boyd

Products manufactured by MAG include switchable and nonswitchable ferrite components for performing specialized control of microwave signals. Non-ferrite microwave components include custom-design circuit elements, coupling, and filtering networks.

MICROWAVE COMPONENTS 445 **INC.**

Chelmsford, MA

D. McCarthy

R. F. coils, air coils up to 18 GHz. Gold, copper, nico, bronze and iron.

MICROWAVE DEVELOPMENT 107 **LABS**

Natick, MA

D. Tucker, H. Krauss, P. Castonguay, R. Levy, G. Riblet

Waveguide and waveguide-to-coax adapters attenuators, bends and twists, circulators, couplers, crystal holders, diplexers, filters, flanges, hybrid junctions, mixers, monopulse, ridged guide components, rotary joints, rotary switches, phase shifters, power dividers, tees, terminations, transitions, shutters, tubing and waveguide windows.

MICROWAVE EXHIBITIONS AND 716 **PUBLISHERS LTD.** **Kent, England**

R. Marriott

Organizers of European Microwave Conference and Military Microwaves '82 Conference and Exhibition. Publishers of all past EuMC and MM Conference Proceedings and reprint volumes covering major areas of microwave activity.

MICROWAVE JOURNAL 319 **Dedham, MA**

W. Bazy, W. M. Bazy, B. Bossard, R. Briden, H. Ellowitz, E. Johnson, D. Heller, J. Webster, S. Pasqualucci, M. Ruzzano

Microwave Journal Magazine, subscription and editorial information.

MICROWAVE PRINTED 445 **CIRCUITRY, INC.** **Lowell, MA**

M. Casper, D. McCarthy, R. Lesage, N. Casper

Etched microwave circuits in stripline, microstrip, soft substrates, thin film; plated through holes and edges, bonded and laminated assemblies; close tolerance etched-drill-plated-machines capabilities.

MICROWAVE SEMICONDUCTOR 232 **CORP.** **Somerset, NJ**

C. Lump, J. Holmquest, H. Bruning, R. Black

Microwave power transistors (silicon bipolar and GaAs FET), power amplifiers, noise sources, low noise transistors, microwave diodes, low noise amplifiers, dielectric resonator material.



Guide

MIDISCO 529 **Commack, NY**

A. Leiman, D. Leiman

MIDISCO manufactures a full line of microwave components including directional couplers, hybrids, adapters, terminations, detectors, cable assemblies, coaxial short and terminations, phase adjustable connectors and mixers.

MINI-CIRCUITS LABORATORY 330 **Brooklyn, NY**

H. Kaylie, G. Kaylie, R. Kaylie, W. Cain

The world's largest manufacturer of double balanced mixers. Signal processing components: double-balanced mixers, microwave mixers; power splitter/combiners; directional couplers; electronic attenuators; electronic switches; broadband amplifiers; limiters; frequency doublers; RF transformers.

MITEC ELECTRONICS LTD. 208 **Montreal, Canada**

M. Bentob, E. Bernstein, T. Robinson

Waveguide, coaxial & ferrite components and subsystems; transmission line systems; band pass, band stop & harmonic rejection filters; high directivity magic-tees & couplers; high power combiners & attenuators & waveguide diplexers.

MITEQ INC. 113 **Hauppauge, NY**

A. Kiiss, H. Kiiss

Amplifiers, oscillators, synthesized sources, mixers, mixer-preamplifiers, signal processing components (including limiters, log-amplifiers, phase detectors) and completely integrated signal processing sections of receivers. Components and subsystems for satellite communications, including upconverters, downconverters, frequency translators and video receivers.

MITSUBISHI ELECTRONICS 631 **Sunnyvale, CA**

J. Iizuka, J. Talbot, S. Mitsui, T. Suzuki

Microwave GaAs FET products; low noise, intermediate power and high power internally matched FET modules.

MM MICROWAVE LTD. 700 **Kirkbymoorside, York, England**

*A. Corlett, J. Shaw, M. Howes,
B. Davidson, A. Bennett*

Waveguide components and systems from 3 GHz to 110 GHz including components: mixers, tees, couplers, transitions, bends, filters, etc. and systems: comparators, front ends, diplexers, antenna feeds, lightweight comparators, power splitters, etc.

MOTOROLA SEMICONDUCTOR 505 **Phoenix, AZ**

*T. Bishop, A. Wagstaffe, P. Kaltus,
E. Reimanis, S. Lazar, C. Moreland*

Low power and high power microwave semiconductor products.

NARDA MICROWAVE CORP. 335 **Hauppauge, NY**

*W. Bourke, A. LeMay, J. Coppola,
B. Leibowitz, G. Gianatasio, F. Carroll,
T. Heyboer, R. DeBrecht, J. Kominitsky,
J. Hausner, W. Crofut, C. Buntschuh,
G. DeBella, R. Coe*

Broadband attenuators, couplers, power dividers, terminations, GaAs FET amplifiers, detectors, PIN diode switches, Gunn, FET and bipolar sources, microwave integrated components, power monitors, microwave multimeter and electromagnetic radiation monitors.

NORSAL INDUSTRIES 415 **Central Islip, NY**

D. Kraker, N. Spector, T. Mandolia

Norsal Industries introduces a new line of wide and octave band switch and mixer modules. Also shown will be the integration capabilities of mixers, switches, hybrids, couplers, etc.. On display will be single sideband modulators, quadrature IF mixers and microwave components to 26 GHz.

NURAD 512 **Baltimore, MD**

D. Carey

Antenna feeds

OAK MATERIALS 629 **Hoosick Falls, NY**

*M. Clott, A. Patterson, R. Dietz, J. Fuller,
W. Jacobi, J. Foeller, P. Quackenbush,
J. Gaukel*

Microwave dielectric PTFE/glass woven and non-woven types: GTN, GXN, GYN, GPN & GRN.

OLEKTRON CORP. 135 **Webster, MA**

J. Canty, L. Foshay, B. Beauregard

Signal processing components, RF and microwave power dividers, double balanced mixers, directional couplers, modulators and other related low power components, also an operating complex phasor modulator with appropriate test equipment.

PACIFIC MEASUREMENTS 523 **Sunnyvale, CA**

D. Armann

The new integrated Model 1038-NS20 Network Measurement System that provides the highest accuracy and complete programmability will be featured along with system and peak power meters.

PIEZO CRYSTAL COMPANY 546 **Carlisle, PA**

C. Jensik, R. Burkholder

High and ultrahigh stability oscillator crystals, doubly rotated cut crystals, mobile/handheld high stability communication crystals, precision crystal oscillators.

PLANAR MICROWAVE 107 **INTERNATIONAL** **Sunnyvale, CA**

G. Layne, K. Buckenmeyer

Solid state microwave components, sub-systems.

PLESSEY OPTOELECTRONICS 511 **& MICROWAVE** **Irvine, CA**

P.J. Minett, T. Lewis, P. Fralia

Low noise GaAs FETs, doppler modules (10.525 & 24 GHz), Gunn oscillators and diodes, IMPATT oscillators.

POLARAD ELECTRONICS INC. 423 **Lake Success, NY**

*E. Kushner, J. Murphy, F. von Brockdorff,
L. Estin*

Microwave signal generators, RF/microwave spectrum analyzers, vector voltmeters

POLY SCIENTIFIC, 512 **DIV. OF LI** **Blacksburg, VA**

J. Vanhoozier

Radar slips rings and twist capsules.

Q-BIT CORPORATION 309 **Palm Bay, FL**

M. Rogers, D. Harney, G. Callaway

Amplifiers, both hybrid microelectronic and connectorized covering the frequencies 1 to 1300 MHz.

RACAL-MESL MICROWAVE 509 **Newbridge, Midlothian, Scotland**

M. Butler, E. Patterson, K. Allstaff

RACAL-MESL Microwave will be displaying their range of pulse compression subsystems for deployment in ATC, surveillance, tracking, synthetic aperture and manpack radar applications. A range of SAW filters for a wide range of applications will also be exhibited.

RAYTHEON COMPANY 344 **MICROWAVE & POWER** **TUBE DIV.** **Waltham, MA**

J. Hieber, A. Vacaro, D. Robertson, R. Roberts, A. Elicone, J. Simpson, R. Mason
A complete line of microwave components including tubes, ferrite devices and solid state devices.



Guide

R. F. DESIGN 722 **Englewood, CO**

*L. Brewster, R. Breashears, S. Myers,
B. Meador*

RF Design Magazine is read by design engineers who specialize in communications equipment at radio frequencies.

RHG ELECTRONICS 322 **LABORATORY** **R. Hirsch, S. Wolin**

Four new mixer products being featured are: WMX Orthoguide mixer, the industry's smallest waveguide image rejection mixer; DMO-Series, double balanced mixer, with built-in dielectric resonator oscillator; DMEX4-18, a double balanced microwave IF harmonic mixer and DMBX2-18, a broadband microwave IF biasable mixer with only -10 dBm LO power.

R & K 644 **Palo Alto, CA**

*B. Jones, E. McBride, R. Donahue,
E. Jones*

Mixers

RLC ELECTRONICS, INC. 637 **Mt. Kisco, NY**

A. Borck, P. Wright, B. Neil

Coaxial components including coaxial switches, multi-position and transfer switches; coaxial filters, including band pass, cavity, high pass, low pass, interdigital; variable and fixed attenuators, terminations, detectors, couplers, power dividers and mixers.

ROGERS CORP. 524 **Chandler, AZ**

*G. Archer, S. Keahey, T. Miller,
R. Sanders, L. Wigman, M. Leeds*

RT/duroid microwave dielectric materials, stripline and microstrip circuits.

SAGE LABORATORIES INC. 312 **Natick, MA**

*C. Marguerite, A. Cieri, K. Paradiso and
D. Buchanan*

Microwave attenuators, couplers, filters, hybrids, mixers, phase shifters, power dividers, rotary joints, switches, detectors, terminations, crystal holders and wireline.

SANDERS ASSOCIATES, INC. 202 **Manchester, NH**

*J. Schack, D. Bond, W. Bradley,
K. Leppanen, R. Bauman, D. Ayer,
R. Bedard, R. Wood*

Systems/subsystems (DIEM's switch matrices), microwave integrated modules (switchable band pass filters, triconverters), components (attenuators, oscillators).

SDI, INC. 532 **N. Billerica, MA**

J. Caruso, R. Jerome, L. Player

Silicon epitaxial wafers, materials & services; microwave diodes, particularly PIN/NIP, Schottky mixer, harmonic generating, tuning varactors, MOS caps - all chips, glass axial & ceramic; solid state switches & modules to 7 throw, bias, drivers (TTL) and connectors.

SEVEN ASSOCIATES 715 **Sunnyvale, CA**

J. Smith, H. Smith, J. Burke, A. Laflin

Tools for soldering, trimming, bending, facing & pointing microwave semi-rigid cable assemblies.

SOLITRON/MICROWAVE 220 **Port Salerno, FL**

*G. Fenex, D. Buchanan, R. Sulzer,
D. Gartzke, W. Hughes*

Coaxial connectors including SSMA 40 GHz mode-free, cable assemblies both flexible and semi-rigid, film products including coaxial attenuators, couplers, terminations, and chip resistors and coaxial field replaceables for MIC packages.

SOUTHWEST MICROWAVE 406 **ELECTRONICS CORP.** **Richardson, TX**

M. Beasley, L. Cardwell

Companies displaying exclusively in our booth are: Amplifonix, Daden Associates, and Junction Devices

SPACE MICROWAVE LABS 636 **Santa Rosa, CA**

J. Paul

Microwave amplifiers and transmitters covering the frequency range from 500 MHz through 18 GHz and beyond. Output power levels from 100 W. to 100 KW and greater are available for both pulsed and CW applications. Applications for these products range from the laboratory to military fighter aircraft environments. Other applications include high power uplink communications, satellite transmitters and threat platform simulators.

STABLE ENERGY 720 **SOURCES, INC.** **Lancaster, PA**

L. Blatt, H. Kagan, R. Hess

Solid state microwave components; low-noise voltage controlled oscillators; dielectric resonator oscillators; high power amplifiers; microstrip supercomponents; stripline assemblies.

STRUTHERS ELECTRONICS 401 **INC.** **Farmingdale, NY**

L. Stewart, A. Fischer

Microwave waveguide and coaxial components and sub-systems, custom design and packages available in 60 days.

SUMMIT ENGINEERING 400 **Bozeman, MT**

Double-balanced mixers, high level mixers, broadband electronic switches; broadband transformers, broadband hybrid directional couplers.

SYSTRON DONNER CORP. 236 **INSTRUMENT DIV.** **Concord, CA**

*G. Dishong, G. Shimabukuro, G. Archuleta,
D. Roberts, H. Winkeler, J. O'Leary,
D. Herbert*

Microwave synthesizers for communication and EW applications, counters for VHF/UHF and microwave communication and for general purpose applications to 26 GHz, electronic test and measurement instrumentation and instrumentation programmers.

SYSTRON DONNER 236 **MICROWAVE DIVISION** **Van Nuys, CA**

*D. Hall, S. Wolf, E. Nyiri, F. Brown,
F. Borghetti, A. Madni, D. Anderson,
B. Waskowitz*

Low noise GaAs FET amplifiers.

TECHTROL 107 **New Cumberland, PA**

P. Bates

Microwave frequency sources and multipliers (low noise-high stability).

TEKFORM 706 **Anaheim, CA**

M. Byrnes, B. Gaunt, D. Scoville

Metal packages, microwave fiber optics. Support hybrid microelectronics industry.

TEKTRONIX 311 **Beaverton, OR**

D. Barnard, M. Riley, D. Jones

492P fully programmable spectrum analyzer, 50 KHz - 220 GHz with 4041 system controller; 7L18 7000 series-compatible plug-in spectrum analyzer, 1.5 to 60 GHz; 7L14 7000 series-compatible plug-in spectrum analyzer, 1 KHz - 1.8 GHz.

TELEDYNE MICROWAVE 210 **Mountain View, CA**

R. Roy, D. Tracy, P. Gruver, K. Mills

A broad range of circulators and isolators, coaxial switches, filter/multiplexers, switchable filter arrays, MIC subsystems and fast switching voltage controlled oscillators, for ECM, communications, radar and space applications.

TELE-TECH CORPORATION 239 **Bozeman, MT**

*J. Duncan, C. Curtis, M.A. Duncan,
K. Leach*

Signal processing components: mixers, switches, transformers, hybrids, couplers, dividers and custom subassemblies.



**TEXAS MICROWAVE/
ELECTRONICS CO.** 107
Dallas, TX

R. Bubel, A. Rottenberg

Representing: Microwave Development Laboratories, Electromagnetic Sciences, Inc., Planar Microwave International Corp. and Techtrol.

TEXSCAN CORP. 501
Phoenix, AZ

D. Sawicki, A. Whitlock

CATV test equipment and related accessories.

THINCO DIV., HULL CORP. 444
Hatboro, PA

J. Hull, S. Chen

**THOMSON-CSF
COMPONENTS CORP.** 407
Rutherford, NJ

H. Sandager

Delay lines, dielectric resonator materials

**THOMSON CSF/SOCAPEX
DIVISION** 407
Canoga Park, CA

R.N. Gulrajani

Connectors: SMA, SMB, SMC, BNC, (QPL 39012), fiber optic, card-edge, DIN (41612/MIL-C-55302), modular, cylindrical, IDC, coaxial, two-piece types. Cables: Fiber-optic, coaxial, twisted pairs, planar, multi-conductor.

**THOMSON-CSF
COMPONENTS CORP.** 407
SEMICONDUCTOR DIVISION
Canoga Park, CA

*R. Tyson, S. Rogers, J. Walsh,
P. Van Arsdaal, E. Wheeler*

R. F. power transistors from 1 MHz through 4 GHz with power outputs to 1 kW pulsed and 500W C. W. and reliability screening capability through space levels and a full line of small signal and power transistors.

**THOMSON-CSF ELECTRON
TUBE DIVISION** 407
Rutherford, NJ

*S. Barthelmes, A. Laconti, J. Boulange,
R. Agniel*

High efficiency and high linearity TWTA's, mm components, 3 kW helix TWT, 75W TWT, 14 GHz klystron ground station tubes.

TOSHIBA 644
Palo Alto, CA

*B. Jones, E. McBride, R. Donahue,
E. Jones*

Semiconductors and traveling wave tubes.

TRAK MICROWAVE CORP. 228
Tampa, FL

*T. Roberts, P. McGivern, W. Gamel,
R. Sloan, W. Cain, M. Lader*

Dielectrically stabilized oscillators (DSO), micropuck ultra-miniature isolator and circulator, and miniature crystal controlled oscillators.

TRANSCO PRODUCTS, INC. 115
Marina del Rey, CA

J. Fricke, R. Williams, R. Patton, E. Kjellberg

Space qualified coaxial and waveguide switches, duplexers and filters; coaxial switches, precision phase and amplitude spiral antennas, airborne antennas for communication and EW applications.

TRITEX TECHNICAL SALES 546
Dallas, TX

K. O'Hare, W. Witkowski

Representing: Piezo Crystal Company and Cir-Q-Tel, Inc.

TRW SEMICONDUCTORS 323
Lawndale, CA

*W. Anderson, W. Sebastian, G. Brannock,
R. DeBloois, D. Schultz, S. Barnes*

Microwave transistors, RF linear hybrid amplifiers, silicon small signal & low noise transistors.

A.J. TUCK CO. 405
Brookfield, CT

A.J. Tuck IV

Ultra-precision electroformed hardware which cannot be produced by conventional means such as casting, fabrication, or dip-brazing.

UNIFORM TUBES, INC. 306
Collegeville, PA

R. Schafer, L. Deery

Semi-rigid coaxial cables, cable assemblies, in-a-cable low pass & band pass filters.

VARIAN ASSOCIATES 536
San Carlos, CA

**VECTRONICS MICROWAVE
CORP.** 137
Middlesex, NJ

J. Vogler, S. Dec

Digital & analog attenuators; digital phase shifters & frequency translators; PSK, QPSK & vector modulators; balanced, quadrature IF and image-reject mixers; custom microstrip modules; passive microstrip components.

WATKINS-JOHNSON CO. 235
Palo Alto, CA

*A. Thompson, D. Butler, D. Killen,
R. Moubert, G. Koker, V. Varenhorst,
A. Isaacs, J. Rowley, S. Witmer*

Microwave electronic systems, electron devices and related equipment.

WAVEGUIDE ENGINEERING 512
Chatsworth, CA

J. Roon

Waveguide bends

WAVETEK INDIANA, INC. 125
Beech Grove, IN

*J. Bush, V. Wildman, T. Connors,
B. Malcolm, E. Forster*

2002A 2.5 GHz sweep generator; 1083 3.5 GHz microwave sweep generator; 1084 4 5 GHz microwave sweep generator; 1905 X-Y display scope; 4101 automatic modulation meter; ultramin filters; tubular filters; assorted microwave components; group delay test set.

WEINSCHEL ENGINEERING 110
Gaithersburg, MD

*B. Weinschel, R. Ramirez, H. Banning,
D. Moore, L. Fletcher, J. Spero, B. Powell,
J. Byloff, B. Patukonis*

Highlighting the VM-24, signal generator, microprocessor controlled calibrator. Also showing the VM-4A attenuator & signal generator calibrator, system II automatic powermeter calibrator and an array of fixed and variable attenuators and other coaxial components.

WESTERN MICROWAVE, INC. 530
Sunnyvale, CA

*J. Lautermilch, K. Schoniger, F. Oliveri,
R. Craig, N. Hartz, B. Braden,
T. Humphries and B. Stookey*

Ferrite isolators and circulators, iso-couplers, iso-filters, power dividers, mixers, mixer preamps, R. F. amplifiers, voltage variable attenuators, PIN diode switches, microstrip mixers and ferrites, various microwave integrated assemblies.

THE WILKINSON COMPANY 209
Westlake Village, CA

N. Teets, R. Stein, R. Cook

Precious metals, high temperature brazing alloys in sheet, wire, powder, and pre-forms, high purity base metals, electronic contact alloys.

WILTRON COMPANY 224
Mountain View, CA

E. Daw, M. Morris, I. Andres, P. Lacy

5659 Automated Scalar Network Analyzer operating in coax over the 10 MHz to 26.5 GHz range, 6637-40 Programmable Sweep Generator with 40 mW leveled output power from 2 to 18.6 GHz and 5647 Option P2 Automated Distance-To-Fault Measurement System for locating faults in transmission lines over the 10 MHz to 18.6 GHz range.

WINCOM CORP. 515
Lawrence, MA

*A. Winston, N. Comins, H. Maddix,
D. Kilduff, J. Hill, R. Antonucci*

High power RF microwave components, including high power PIN diode switches, filters, suspended substrate multiplexers and subsystems.

ZETA LABS, INC. 635
Santa Clara, CA

C. Frank, D. Frank, K. Shade, J. Dowell

RF & microwave components & subsystems including frequency synthesizers, crystal oscillators, frequency multipliers & signal processing/simulation equipment.