QUINSTAR TECHNOLOGY, INC.

WaveFront

The QuinStar Newsletter July 2012

Message from the CEO/President

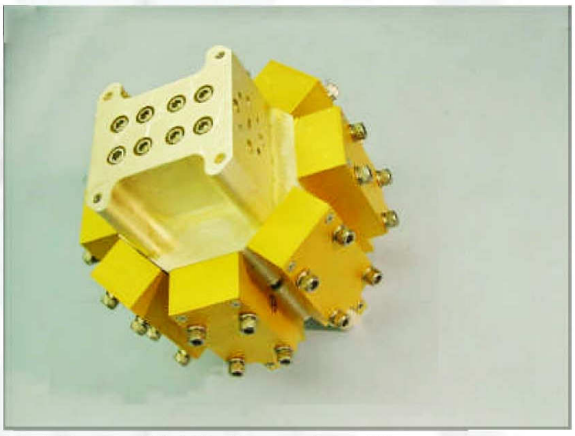
Leo Fong

Welcome to this premier issue of **WaveFront**, the new QuinStar Newsletter! We are delighted to inform you about many recent enhancements in our products, capabilities and facilities. QuinStar is constantly advancing state-of-the-art technology to benefit its customers and the microwave/millimeter wave application community at large. Our employees join me in thanking you for your support and pledge to continue to provide exceptional service, quality and performance to empower your applications. Your feedback is always very important to us, so please keep us informed and appraised. Best wishes for success in your endeavors, and we sincerely look forward to working with you to our mutual benefit.

New Products Introduced

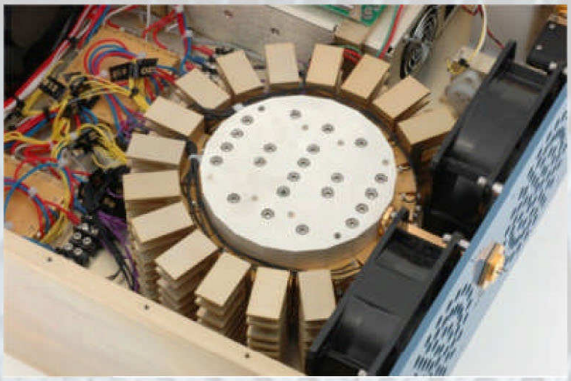
High Power Amplifier Subsystems
QuinStar has created a new product line (Model QBP) of high power millimeter wave amplifiers based on the most advanced device and circuit technology available. This line incorporates many useful features and offers excellent performance characteristics. Standard products in this line offer a power level of 45 Watts at 35 GHz and 10 Watts at 94 GHz. These amplifiers are intended for use in satellites and space equipment as well as for airborne and ground applications for communication and radar equipment.

Q-band SSPA for Space Communication



High Power 94 GHz Power Amplifier

Instrumentation Solid State Power Amplifiers
QuinStar has created a new product line of standard and custom Instrumentation Amplifiers (Model QAI) in the millimeter wave frequency range based on the most advanced device and circuit integration technology. This line also incorporates many useful features and excellent performance characteristics. These amplifiers can be offered over wide band (up to full waveguide band) or operate over relatively narrow band with an exceptionally high power level. Our customers have used them for applications as diverse as plasma diagnostic, medical research, communication and remote sensing.



60 GHz 10 Watt Instrumentation Amplifier

Waveguide Noise Sources

QuinStar has developed a new line of Waveguide Noise Sources covering 50 to 110 GHz using standard full waveguide bands (Q, U, V, E and W) with high ENR. They have excellent ENR flatness and stability over broad bandwidth up through full waveguide band. Typical ENR flatness is +/- 0.75 dB over any 10 GHz region and +/- 1.25 dB over full band. Full band output isolators are also offered. Complete specifications are available on our website, www.quinstar.com.

Broadband Active Multipliers

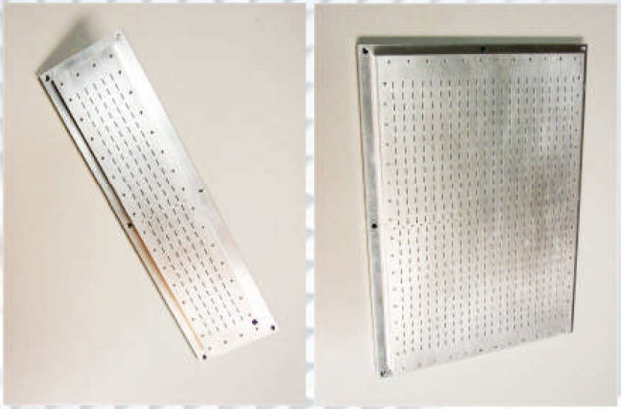
QuinStar has recently improved and expanded its product line of Active Frequency Multipliers (Model QMM) with wider bandwidth and higher power levels than previously offered. Adequate output power is available over broad range (up to full waveguide band in most cases) to serve as local oscillator for most receiver down-converters and transmitter up-converters or drivers. Contact our Sales Department by email (sales@quinstar.com)for additional information and data.

Radar Signal Simulators

QuinStar's Radar Signal Simulators and Radar Test Equipment have been developed for a variety of applications ranging from evaluation or characterization of various radars to conducting final inspection in production lines. These are designed to interface with automated test equipment (ATE) and process control computers. The basic product can be customized to suit customer's specific requirements and operation environment.

Slot Array Antennas

A diverse set of low-profile, high performance waveguide slot-array antennas has been developed and deployed in applications which require the depth of the antenna to be minimized. The beam width(s) can be tailored to suit the specific requirements. Beam width ranging from very narrow (fan beam) to symmetrical (pencil beam) have been produced so far. Virtually any polarization can be generated or received. Many of QuinStar's slot array antennas are currently in use on aircrafts and research platforms, and are being used for radar and interferometry.



Examples of 35 GHz Slot-Array Conformal Antennas

Full Band OMT

QuinStar now offers a complete line of full waveguide band Orthomode Transducers (OMT) with exceptionally high cross-polarization isolation and low insertion loss. See Series QOT for details.

W-band Orthomode Transducer with scalar feed horn attached

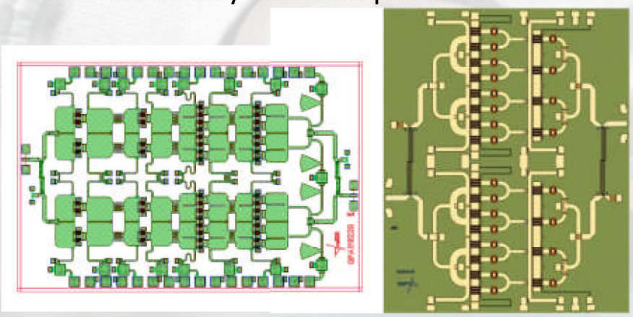
Announcements and News

Small Business Innovation Research (SBIR) Contracts Announced (April 2012)
QuinStar has recently received two Phase I awards from the US Air Force; one for the development of W-band Power Amplifiers for SATCOM and the other for W-Band Low Noise Amplifiers with Noise Cancellation, which also have SATCOM applications.

Small Business Innovation Research (SBIR) Contracts Received during 2011-2012
QuinStar has delivered on several novel SBIR contracts and made significant progress toward completing a total of four Phase I and five Phase II contracts during this period. Our progress has resulted in the development of a range of MMIC devices, circuit integration and power combining techniques, which have been productized for a wide range of applications.

Major Defense Production Contract
QuinStar has received a go-ahead on the multi-year initial production of Transceivers for a US Navy Program.

QuinStar's Own MMIC Development
QuinStar has successfully completed the design development, fabrication and testing of three foundry runs of MMICs. They include power amplifiers, driver amplifiers, LNA and other significant devices. Many strategic products now utilize QuinStar's own MMIC chips, giving QuinStar and its customers a competitive edge over commercially available products.



W-band MMICs developed by QuinStar Technology

QuinStar Celebrates 19th Birthday
On April 1, 2012, QuinStar celebrated its 19th Birthday. As Mr. Fong, QuinStar's CEO remarked, "QuinStar has survived the many ups and downs of the industry during this entire period, and stands strong and more versatile today amongst the competition."

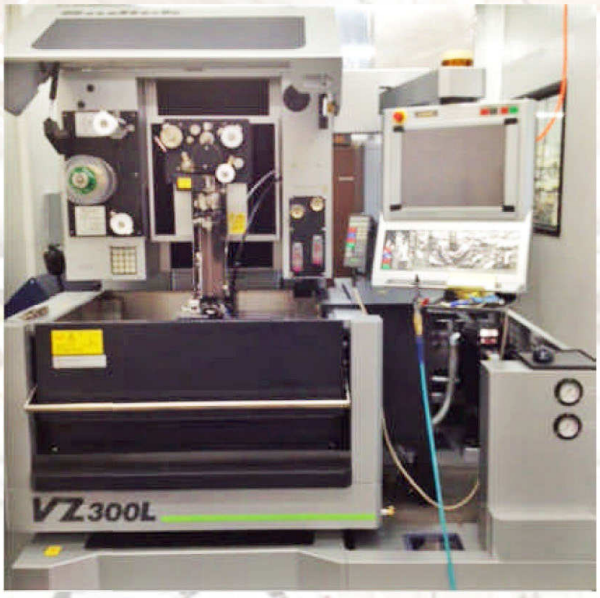
QuinStar Expands and Occupies New Building in Torrance
QuinStar completed Phase 1 of the expansion and upgrade process of its facilities, adding approximately 15,000 square feet (1400 sq. m) of manufacturing space. Phase 2 and 3 upgrades will further enhance QuinStar's capabilities and capacity, particularly in the high-reliability manufacturing and test areas.

Newly added facility at 3425 Lomita Blvd., Torrance

QuinStar Receives AS9100 Accreditation
QuinStar's quality system has been audited and approved for AS9100- Rev. C.

QuinStar Completes Delivery of Space Q-band SSPAs for European Satellite based Communication Experiment
QuinStar delivered a set of high power Q-band power amplifiers (10 Watt) operating in the 38 to 40 GHz range for integration with a technology development payload for communications experimental study.

Wire EDM Facility Produces High Precision Components and Fast Track Development
Newly added facility allows rapid development and delivery of millimeter wave components and their parts with high precision and finish, often eliminating the need for specialized machining processes or electroforming. This has significantly reduced the production cycle time of many standard as well as custom components and assemblies.



Wire EDM facility

QuinStar Presents at Technical Sessions of the 2012 International Microwave Symposium
QuinStar employees presented two technical papers at the recently held IMS 2012 in Montreal, Canada.

Upcoming Industry Events

QuinStar to Attend European Microwave Conference and European Microwave Week
Amsterdam RAI, The Netherlands
October 28th - November 2nd 2012.

QuinStar to Host Millimeter Wave Webinar
Dates, topics and times to be announced.

Industry and Profession News

E-band Communication Status
Significant new interest has been generated in this frequency band (71-76 GHz and 81-86 GHz) in the recent past from unlikely and unrelated groups! The US Air Force and Defense Advanced Research Projects Agency (DARPA) have active programs in this band for future military communications. On the commercial side, the backhaul of cellular data traffic is getting increased attention lately. QuinStar is well poised to address all these emerging requirements with its newly developed MMIC power amplifiers, LNA, antennas and other technologies.

Transactions on Terahertz Science and Technology Journal Launched by IEEE- MTT Society
The premier inaugural issue was published in September 2011- Editor P.H. Siegel, with a stated mission of "Expanding the Use of the Electromagnetic Spectrum".

Industry Calendar

European Microwave Week 2012- Oct. 28 to Nov. 2, 2012 consisting of three conferences:
The European Microwave Conference (EuMC)
The European Microwave Integrated Circuits Conference (EuMIC)
The European Radar Conference (EuRAD)

Factoids & Technical Information

Did You Know?

- Employees at QuinStar collectively speak 26 languages as their second language.
- OMT, in combination with polarizers and switches, can generate all types of polarizations- linear, circular and elliptical.
- The first 60 GHz radio transmission was in 1894 in India and the UK by Sir J. C. Bose of Calcutta University.
- Before the introduction of Fiber, both Bell Laboratory and British Post Office seriously considered using a 2-inch circular waveguide to carry 80,000 telephone conversations at millimeter wave frequencies in the 30 to 100 GHz range! Today, a single fiber 40 mils (1 mm) in diameter can carry 50 million telephone connections.
- Automobile Radars for safety, collision avoidance and automatic cruise control using millimeter waves were first developed or researched in 1972, but were not available on cars till around 1997!

Contact Us

www.quinstar.com
(310) 320-1111
sales@quinstar.com

24085 Garnier Street
Torrance, CA 90505
USA