



# AURIGA

*MICROWAVE*



POWER

EFFICIENCY

LINEARITY

BANDWIDTH

WEIGHT

SIZE

BALANCED SOLUTIONS THAT OVERCOME HISTORICAL  
AND CHALLENGING POWER-AMPLIFIER DESIGN AND  
PERFORMANCE LIMITATIONS

## WHAT WE DELIVER

Auriga designs and manufactures high-performance, solid-state, power-amplifier modules integrating original and conventional design techniques to provide cutting-edge, low-risk solutions. Some of these techniques include Envelope-Tracking, N-way Doherty, switch-mode biasing (Class D, E, & F), and digital/analog pre-distortion. Often, the ideal approach involves integrating digital, analog, and microwave circuitry to maintain compact size and affordability.

We specialize in custom solutions, creatively optimizing efficiency, linearity and size to exceed specifications based on performance, time and money. Customers can expect to see solutions that offer:

- » higher output power
- » improved efficiency
- » better linearity
- » wider bandwidth
- » smaller size
- » lighter weight

## WHAT MAKES US DIFFERENT

Auriga is dedicated to providing unsurpassed amplifier and RF front-end performance for military and commercial applications. The world class design team specializes in blending conventional techniques with novel approaches to create solutions that are innovative and reliable. We understand there are trade-offs between size and power, efficiency and linearity, and novelty and cost. Our strength lies in our ability to find the most balanced solution for each customer.

Having in-house modeling capability provides Auriga with a unique advantage. Rather than using foundry models intended for universal application, Auriga generates custom models tailored for specific design environments. This facilitates first-pass success that translates to optimal performance, faster delivery, and lower cost for the customer.

Auriga has deep roots in solid-state device measurement, characterization, and modeling. With an advanced understanding of device physics, Auriga engineers optimize the full potential of the latest GaN- and GaAs-based technologies. Leveraging strong working relationships with GaN and GaAs foundries around the world, we employ the most desirable process to meet each project's technical requirements. Often, we have access to foundries' beta product, allowing us to stay on the forefront of bleeding-edge technology.

## HOW WE CAN HELP YOU

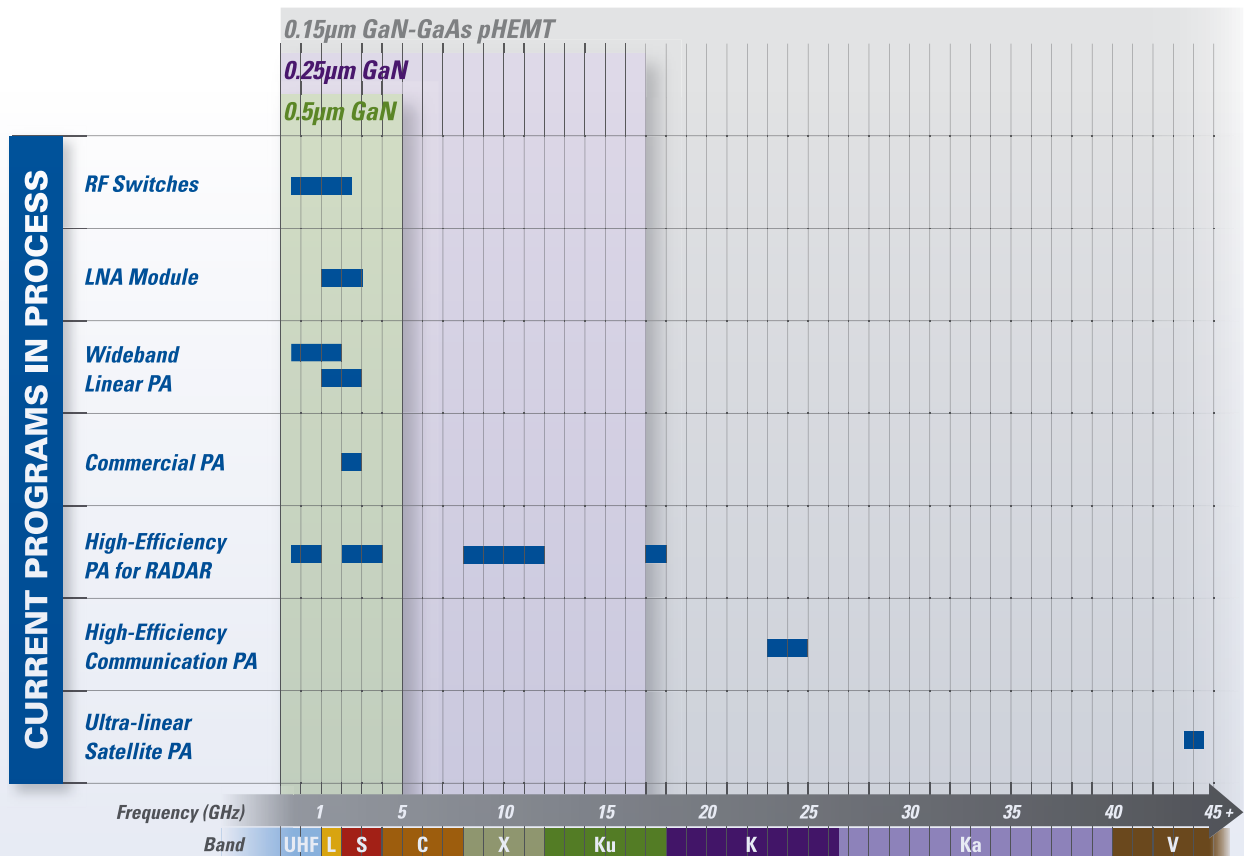
Auriga delivers time- and cost-effective solutions. Tell us your specifications and performance requirements (your "must haves"). We will use our:

- » GaN- and GaAs-based expertise
- » innovative designs (many patent-pending)
- » dedicated team effort
- » world-renown and proprietary modeling capabilities
- » strong relationships with DoD Category 1A trusted foundries
- » access to newly released technology

to design and manufacture a balanced solution that exceeds your needs.

## WHAT WE ARE DOING NOW

- » Auriga designs and manufactures power amplifier modules for integration into the following systems:
  - » radar
  - » radar jamming
  - » communications
- » Auriga power-amplifier modules are customized for:
  - » high power (building a combined solution up to 1 KW)
  - » high frequency (projects covering UHF – 44 GHz)
  - » high linearity (jammer covering up to 8 tones)
  - » high efficiency (depending on project and method, seeing up to 70% power added efficiency)



Programs underway (April 2010)

CUSTOMER/AFFILIATION	TOPIC	BRANCH	NEED/REQUIREMENT
<b>SBIR: N07-007 NAVAIR</b>	Solid-State High-Efficiency Radar Transmit Module (UHF)	Navy: Unmanned Aviation and Strike Weapons	High-efficiency radar transmitter to reduce the weight, fuel consumption, and operating cost of Unmanned Aerial Systems (UASs)
<b>SBIR: N08-039 NAVAIR</b>	Wide Bandgap Amplifier Linearization (L & S-Bands)	Navy: Tactical Aircraft	Wide band, high-linearity, high-efficiency PA for Next Gen Jammer
<b>SBIR: N07-194 SPAWAR</b>	Shipboard Low Noise Amplifier Assembly (UHF, L, & S-Bands)	Navy: C4I	Low noise amplifier with high-power survivability for mast top deployment
<b>SBIR: A08-007 CECOM</b>	High-Power Integrated RF Switches for JTRS (UHF, L, & S-Bands)	Army: Missiles and Space	High-power MPMT switch with very low loss for switch matrix
<b>SBIR: N08-172 NAVSEA-NRL</b>	High-Efficiency Solid-State Radar PAs (S & X-Bands)	Navy: Integrated Warfare Systems	High-power S-band PA with very high efficiency
<b>SBIR: AF083-155 AFRL-RYHA</b>	Next Gen Ultra-Linear SHF/EHF Solid State PAs (Q-Band)	Air Force: Satellite Communications	High-power 44GHz PA with very high linearity
<b>SBIR: N093-221 JTRS</b>	Highly Efficient Transmitter for High PAPR Waveforms (UHF & L-Band)	Navy: JTRS	Compact, broadband highly efficient transmitter for complex waveforms with high PAPR
<b>Samsung-Thales</b>	High-Efficiency MMIC Hybrid Module (K-Band)	Agency Defense Development for Republic of South Korea	High-power and high-efficiency
<b>Schlumberger</b>	High-Power MMIC Hybrid Module (Ku-Band)	Research and Development	High-power sensor operating at extreme temperature

Frequency band of operation and enabling solid-state technology under development

## WHO WE ARE

Auriga is committed to being the international leader in designing and manufacturing innovative RF/microwave solutions. At Auriga, we push the limits of science and technology to surpass the performance goals of our customers.

For more than 30 years, Auriga's design and modeling teams have excelled in RF measurement science. We have the experience to help companies achieve never-before-seen MMIC designs and non-linear models with unparalleled performance. Whether supplementing customers' design and modeling resources or delivering custom turn-key solutions, Auriga is a "sure-fire" asset in getting products to market faster, more efficiently, and with greater potential for success.

Partnering with our customers, we are a leading high-performance power-amplifier designer for Department of Defense primes – offering the government state-of-the-art power-amplifier capabilities. All technology is designed for expedited integration into other programs, military branches, and industry applications.

## OUR TEAM

Since 2007, when Auriga earned its first Small Business Innovated Research (SBIR) award, our dedicated team of "old-" and "new- school" engineers has led the way in cutting-edge technology. Under the leadership of Dr. Yusuke Tajima, Chief Technology Officer, our design team has created and produced some of the most sophisticated terrestrial and space-qualified military technology in use today. Dr. Tajima was responsible for delivering such satellite programs as Globalstar, Inmarsat, and Skybridge. He was a pioneer of GaAs MMIC technology.

Auriga is led by a team of entrepreneurs whose vision and expertise have transformed start-up companies into multi-million-dollar corporations.



## CONTACT INFORMATION

Auriga Microwave  
650 Suffolk Street, Suite 410  
Lowell, MA 01854  
Tel.: 978-441-1117  
[www.aurigamicrowave.com](http://www.aurigamicrowave.com)

Yusuke Tajima, PhD – Chief Technology Officer  
Ted Lewis – Vice President