

Amplifier Technology Uses Microwave Office to Design High Performance Amplifiers While Cutting 50% Off Their Design Time

The outstanding modeling capabilities of Microwave Office helped designers to develop an optimal footprint for new, high power amplifiers

CUSTOMER BACKGROUND

Amplifier Technology Ltd. (ATL), based in Yate, Bristol, United Kingdom, designs and manufactures leading edge RF power amplifiers used primarily for jamming, communication and radar systems in the defense and aerospace sectors. The company's depth of experience in what is often thought of as a "black art" provides the capability to design and manufacture products with industry leading levels of performance. Amplifier Technology has more than 30 years of experience in the design and manufacture of RF power amplifiers. The R&D team comprises engineers who have experience in gallium nitride (GaN), gallium arsenide (GaS) and laterally diffused metal oxide semiconductor (LDMOS) technologies and continue to push the boundaries of product performance with each new design.

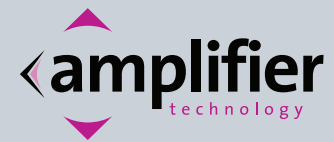
THE DESIGN CHALLENGE

Microwave Office® software is being used by ATL for the design of leading edge power amplifiers. The goal was to create a product that would combine broadband with high efficiency and high power. ATL's latest product, a 20MHz–520MHz, 125W high power amplifier, posed the difficult challenge of improving the level of power and efficiency while at the same time reducing the footprint.

The challenge took the design team on a journey that explored and pushed the capabilities of GaN technology to achieve the minimum saturated output power of 125W in the defined frequency range.



ATL broadband power amplifier that delivers saturated output power of 125W for frequencies of 20MHz to 520MHz. The amplifier is designed as a 'commercial of the shelf' product (COTS), providing high output powers with good overall efficiency.



Application:

Power Amplifiers

AWR Software:

Microwave Office®



"Microwave Office has helped us characterise appropriate parameters for each prototype design, evaluate possible variants and simulate the device performance straight from the design stage. In my experience Microwave Office is the best design solution available on the market."

*Paul Deacon
Senior RF Design Engineer
Amplifier Technology
www.amplifiertechnology.com*

THE SOLUTION

Why did you choose Microwave Office?

Seamless integration of key software functionality was absolutely essential in ensuring a speedy design process and first pass design success. Given ATL's experience with Microwave Office software for prior product design and development projects, the R&D team was already familiar with and sold on the software's power and reliability, the transparent integration of its technologies, and its ability to accurately and quickly simulate complex designs.

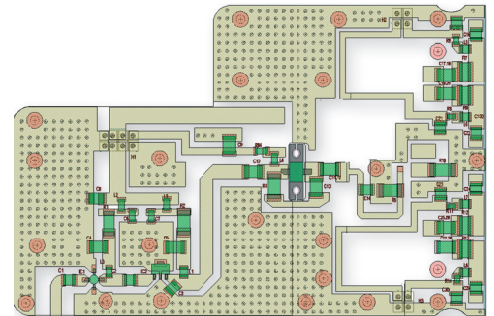
What were the key benefits of using AWR software?

The powerful and innovative technologies within the Microwave Office design environment met the design team's requirements for speed and accuracy, as well as seamless integration. The software's outstanding modelling capability enabled the rapid exploration of a huge range of parameters and designs and helped the team to quickly settle on the optimal layout. Microwave Office accuracy minimized post design work during prototype build, which led to a significant 50% reduction in design time and faster product delivery. The reliable and timely support offered by AWR further added to our confidence!

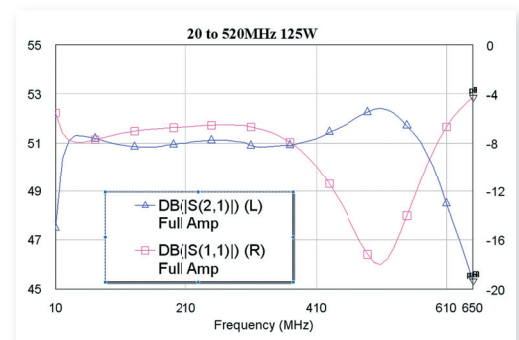
"Over the past few years Amplifier Technology's customers have continually pushed us to provide more demanding levels of performance in our power amplifiers, with ever-shorter delivery schedules," said Paul Deacon, senior RF design engineer at ATL. "Microwave Office has helped us characterise appropriate parameters for each prototype design, evaluate possible variants and simulate the device performance straight from the design stage. This has enabled us to meet customer expectations for better performance and shorter delivery. In my experience Microwave Office is the best design solutions available on the market."

ABOUT MICROWAVE OFFICE

Microwave Office design suite is the industry's fastest growing microwave design platform and has revolutionized the communications design world by providing users with a superior choice. Built on the AWR high-frequency design environment platform with its unique Unified Data Model™, Microwave Office software is intuitive and offers powerful, innovative technologies and unprecedented interoperability. The Microwave Office design suite includes all of the essential technology: linear and nonlinear circuit simulators, EM analysis tools, integrated schematic and layout, statistical design capabilities, and parametric cell libraries with built-in DRC.



Microwave Office layout of the driver board for the 20MHz – 520MHz, 125W Power Amplifier.



Microwave Office simulation results.



AWR, 1960 East Grand Avenue, Suite 430, El Segundo, CA 90245, USA
Tel: +1 (310) 726-3000 Fax: +1 (310) 726-3005 www.awrcorp.com

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