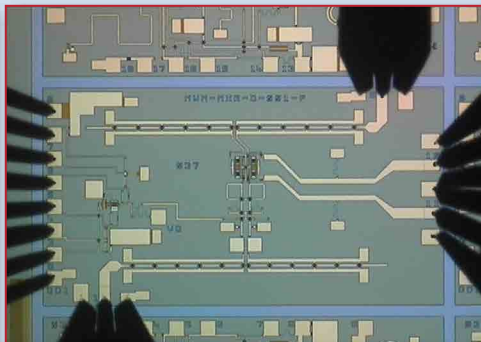


# FAB S and LAB S

## PRFI: Developing Microwave and mmWave MMICs, RFICs and Modules



PRFI is an independent design house specializing in the design and development of microwave and mmWave RFICs, MMICs and modules. Unusual in the sector of high frequency components and subsystems, PRFI has no catalog of standard products. Instead, it sells its design services to equipment manufacturers, as well as the component manufacturers themselves. To suit precise customer requirements, most of its designs are application specific and some technology demonstrators to establish the feasibility of new techniques or the ability to meet emerging requirements, like 5G mmWave beamforming.

Formerly known as Plextek RFI, the company's highly experienced team of eight design engineers has developed more than 100 custom microwave and mmWave ICs using a range of GaAs and GaN processes and foundries, including GCS, Qorvo, Sanan IC, UMS, WIN Semiconductors and Wolfspeed. Among the MMIC designs: mmWave 5G ICs and modules for the world's leading telecom companies, including a single chip front-end module for 28 GHz 5G. The team simulates designs using Keysight ADS, for which PRFI's senior designers are "certified experts."

This IC design expertise is complemented by practical experience with mmWave surface-mount packaging, including overmolded and air-cavity plastic and custom laminate. PRFI has a track record developing high frequency packaging solutions proven for volume production. The team has also developed many microwave and mmWave modules and subsystems, including high power amplifiers and gain and phase control modules.

PCB fabrication and assembly, chip and wire assembly and prototype module production are all subcontracted, in

many cases to local specialist companies around Cambridge, U.K., near PRFI's labs and offices. Subcontract packaging of PRFI-designed ICs occurs both in the U.K. and offshore. Testing of ICs and modules, with tuning and adjustments to modules, can be performed on site. PRFI's 2,800-square-foot facility in Great Chesterford includes two laboratories: a mmWave clean room for measuring bare die using direct, on-wafer probing and an RF lab for measuring connectorized modules and packaged components. Test capabilities include S-parameters, power compression, IP3 and noise figure to 50 GHz.

PRFI's clients are an international "Who's Who" of the microwave industry, names such as Analog Devices, Inmarsat, Qorvo, Sony, Raytheon, Thales, pSemi, Samsung, TDK and BAE Systems. Many customers, including Sony and Qorvo, have engaged multiple successful designs with PRFI. Sony cites "professionalism, attention to detail and their ability to quickly grasp the project requirements and key targets" among its reasons for collaborating with PRFI. Raytheon says it is "very impressed by the level of MMIC design experience at PRFI, where the team demonstrated both in-depth technical knowledge and a detailed commercial understanding."

The name change to PRFI in July 2020 was motivated to avoid confusion with Plextek Services Ltd., with whom it still shares the site. PRFI has been an independent limited company since 2015, originally formed from the RF Integration Group within Plextek Ltd. In its 20-year history, PRFI has been recognized across the world as an innovator designing microwave and mmWave RFICs, MMICs and modules.

[www.prfi.com](http://www.prfi.com)