



Electron Devices

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L3 EDD Wins Tech Ex 2017 Award



TechEx17 is the premier L3 venue for presentation of high quality technical papers. The L3 Technologies Engineering Council selected “Technology for Tomorrow’s Missions” as the theme for TechEx17 to emphasize the importance of L3 staying ahead of the technological curve. All VPs of Engineering, Chief Technology Officers, Chief Engineers/Chief Scientists, other Senior Engineering leaders and presenters were invited.

Best Paper: (Sensors)

A Compact G-Band Power MPM Amplifier for High-Resolution Airborne Radar

Abstract: A compact, upper-mm-wave, microwave power module (MPM) power amplifier operating in G-band from 231.5 GHz to 235 GHz has been developed at L3 Electron Devices for use in a cloud-peering high-resolution airborne imaging radar. Two MPM configurations have been tested: The first, intended for laboratory use, consists of a single-housing containing a PPM-focused serpentine waveguide traveling wave tube and a compact 20 kV high voltage power supply. This MPM provides a peak output power of 42 dBm at 234 GHz when driven with 7 dBm input. The second MPM is configured for use in a modified tactical airborne gimbal. It employs a custom split-package architecture consisting of separate power supply and RF modules, along with interconnecting cabling. This unit has been qualified for airborne operation up to 20 kft (6 km) and provides greater than 45 dBm at 234 GHz when driven with 11 dBm input drive. Both MPMs operate from 270 VDC prime power and at duty factors up to 50%. Radar waveforms have been successfully processed through both amplifiers. Flight testing is underway. This development represents the first realization of an integrated G-band MPM in the world. This work is funded by the DARPA Strategic Technology Office under the video-frame-rate synthetic aperture radar (ViSAR) program.

