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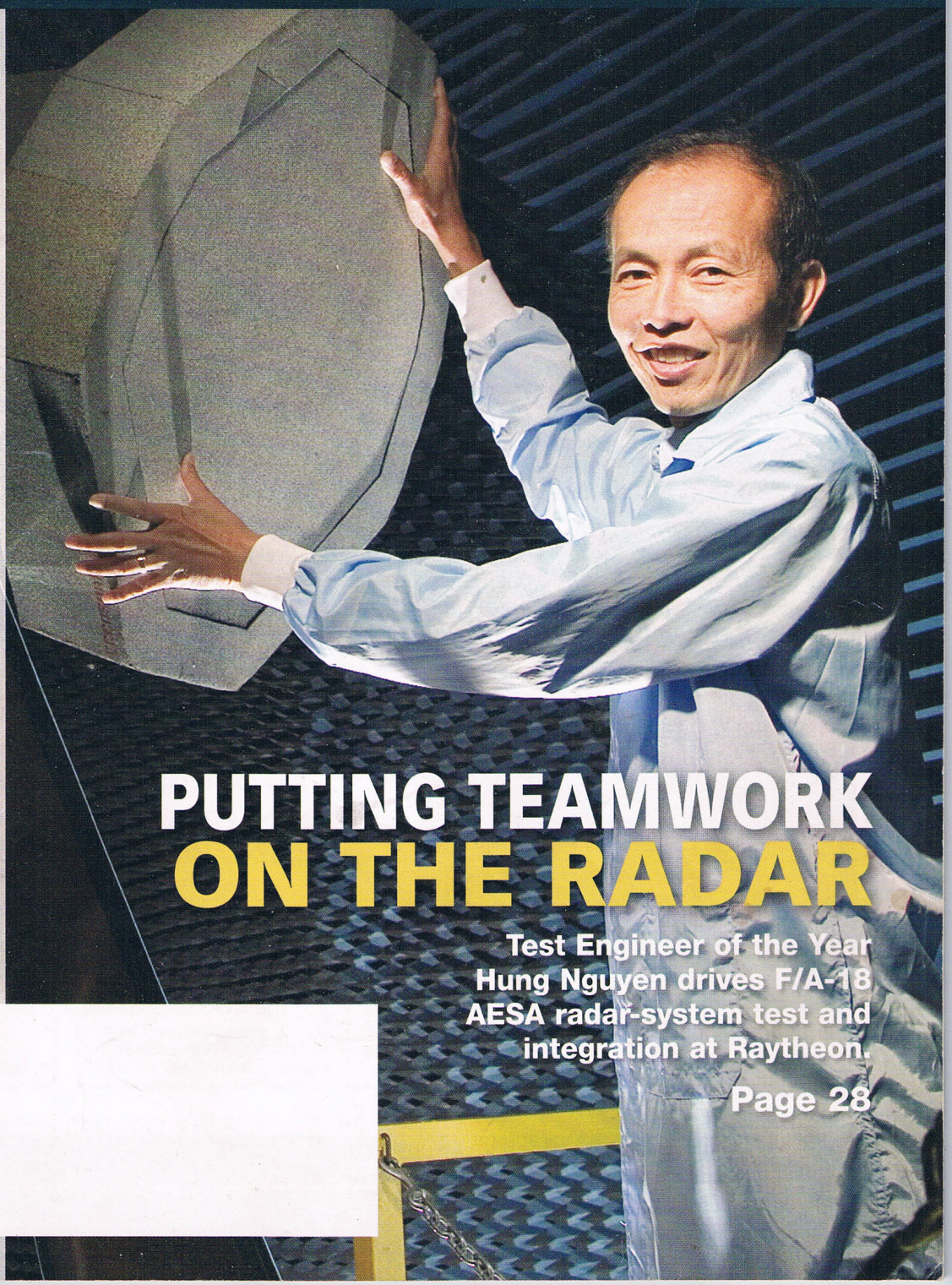

PUTTING TEAMWORK ON THE RADAR

Test Engineer of the Year Hung Nguyen drives F/A-18 AESA radar-system test and integration at Raytheon.

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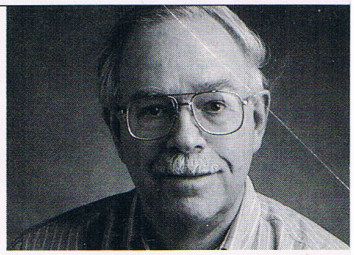
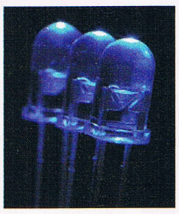


Odds and ends

From the Human Factors department: What's with the trend toward illuminating everything with blue LEDs? I recently purchased a Sears electrostatic air cleaner that



features function switches illuminated from the rear by blue LEDs. Under normal lighting conditions, the indicators' black-on-silver icons are perfectly readable. Unfortunately, the stylists selected blue point source LEDs for backlights, which render the icons almost unreadable under low-light conditions.

Good reasons exist for not using blue illumination, including the human eye's difficulty in focusing blue light. Aside from blue-lighted automobile gauges, I'm unaware of any professional-quality test instruments that use blue LEDs as illuminators or indicators. Let's hope that function continues to triumph over fashion, and that the human-factors engineers beat the blue daylights out of the stylists.

From the Better Health department: If you've ever bloodied your knuckles while bolting up a waveguide, chances are you'll cheer the arrival of a new technology that enables fabrication of waveguides and other structures on substrates. Developed in conjunction with researchers from the University of Colorado at Boulder, the PolyStrata process uses a polymer molding material deposited in a layer surrounding electroplated metallic structures. Repeated deposition of plating and molding materials produces 3-D structures filled with the polymer. Dissolving the polymer yields microminiature waveguides and air-dielectric transmission lines.

The technology appears well-suited to building systems on a substrate that incorporate everything up to and including an antenna array. From a test-engineering viewpoint, adding test connectors might prove challenging, and you'd do well to incorporate built-in test equipment (BITE) onto the substrate. But you'll never skin your knuckles again.

From the Low Budget department: If you're a student, an impoverished experimenter, or a test-instrument collector, you may have accumulated one or more instruments that include an IEEE 488 (GPIB) interface. While several manufacturers offer highly capable data-acquisition and control packages (e.g., National Instruments' LabView), the software alone may cost more than your entire instrument collection. As an alternative, you can download EZGPIB, a freeware GPIB, RS-232, and TCP/IP program that features a Pascal-like programming language.

Developed by Ulrich Bangert, holder of German amateur radio license DF6JB, EZGPIB runs on an IBM-compatible PC that's equipped with either of two GPIB interfaces (see "More odds and ends" at right) and uses Windows 2000 or a more recent Microsoft operating system. You'll need to become familiar with your instrument's GPIB programming commands, though. Give EZGPIB a try! T&MW

MORE ODDS AND ENDS

Aesthetics aside, some controversy exists regarding the possible health hazards presented by blue LEDs:
texyt.com/bright+blue+leds+annoyance+health+risks

If you use a popular search engine to look for "polystrata," you may encounter a batch of scholarly papers dealing with red algae, paleobiology, and paleoecology. Instead, use the search phrase "polystrata microwave" or read the following on the *Microwave Journal* site:

- To learn more about Rohm and Haas' PolyStrata technology, read *Microwave Journal* for February 2008, pp. 66–86.
www.mwjournal.com/Journal/article.asp?HH_ID=AR_5448

- To read an interview with David Sherer, Director of Research and Product Development at Rohm and Haas' Electronics Materials Division, go here:
www.mwjournal.com/News/article.asp?HH_ID=AR_5479

To download a free copy of Ulrich Bangert's EZGPIB software, go to:
www.ulrich-bangert.de/html/downloads.html

For information on Prologix' inexpensive ($149.95) GPIB-USB interface, go to:
www.prologix.biz

To learn more about the current version of NI's LabView software, go to:
www.ni.com/labview

For information about NI's EZGPIB-compatible PCI-GPIB hardware interface, go to:
www.ni.com/pdf/products/us/4gpib665-668.pdf

And now for something completely different: You can use a stepper motor salvaged from a 5¼-in. floppy-disk drive to build a micropower wind generator:
www.thebackshed.com/Windmill/assemblyMini1.asp