



# TECHNICAL COLUMNS

Official archives of articles and columns written by Ron Hranac for Communications Technology and some of its sister publications, published by Access Intelligence, LLC. Reprinted with permission of the author.

By **Ron Hranac**, former **Senior Technology Editor**, **Access Intelligence** and **Communications Technology Magazine**

Originally appeared in the **July 2003** issue of *Communications Technology*.

## EXPO '03: BROADBAND ENGINEERING LOOKS FIT IN PHILLY

By **RON HRANAC**

I don't know how they manage to do it, but SCTE pulled off yet another Cable-Tec Expo that topped the previous year's confab. Philadelphia turned out to be an excellent venue, with top-rated restaurants and local attractions for attendees and family members alike. Indeed, the historical aspect of Philly was ideal for Expo's 20th anniversary celebration, which included large posters highlighting each Cable-Tec Expo back to 1983. Overall attendance was up about 6 percent from a year ago, exhibitors and attendees with whom I spoke were upbeat, and floor traffic remained busy throughout the entire show.

Acterna had tasty refreshments and some great mugs—an annual tradition—at the Arrival Night Reception. Two of those mugs have been added to my collection.

Expo Evening, held at Philadelphia's Ben Franklin Institute, was a ton of fun. The Institute is a science and technology museum, a veritable candy store for us technical types. Way cool.

This year's Engineering Conference featured Comcast President/CEO Brian Roberts as keynote speaker, followed by a pair of informative CEO and CTO panels. Training has always been one of Expo's high points—there were 20 workshops from which to choose. Decisions, decisions.

And exhibits. Lots of exhibits and an opportunity to see the latest technology and meet with industry vendors.

There was the usual camaraderie at the SCTE-List and ham radio operators' receptions (a special thanks to all of the door prize sponsors), and the shenanigans, er, distinguished gathering of the Loyal Order of the 704.

A very big tip of the hat to all of SCTE's hard-working staff and the Expo Program Subcommittee for a job well done.

My own schedule was as crazy as ever, but I still managed to find some time to wander the exhibit hall looking for clever gadgets, technology and other odds and ends.

Here, in no particular order, are my picks from Expo:

Handy spectrum analyzer

Bill Cohn had to run me through security and search my backpack on the way out of the TVC booth after I was done drooling over the new Rohde & Schwarz FSH3 handheld spectrum analyzer. This battery-operated 100 kHz to 3 GHz 50-ohm instrument is pretty impressive: It does the usual spectrum analyzer stuff, including channel and TDMA power measurements, and can be linked to a PC via a nifty RS-232-C optical interface. It's available with an optional tracking generator that facilitates scalar network analysis (reflection and transmission) and even distance-to-fault measurements. An optional power sensor will turn the FS3H



into a power meter! And did I mention that it's handheld? And battery operated? The FSH3 is available from Tektronix ([www.tektronix.com](http://www.tektronix.com)).

Ever wonder how to install heat shrink on, say, a housing-to-housing adapter? How do you put heat shrink on a connector that was missed during the rebuild or upgrade, without taking the connector apart to install the heat shrink? Well, wonder no more. Canusa's ([www.dsgcanusa.com](http://www.dsgcanusa.com)) new CFTV QuickSeal is a heat-shrinkable wraparound that comes in 36 inch by 7 inch sheets, and can be cut to size to fit the application. QuickSeal offers the same permanent protection as conventional heat shrink tubing, and is re-enterable.

#### Useful test probes

Here's one of those "why didn't someone think of this before?" ideas. Take a JXP, SPB or SXP attenuator without the usual innards, install a short piece of cable with an F connector to the attenuator body, and voila! A test probe that can be plugged in to an amplifier or node attenuator socket, useful for monitoring signals present at the socket, or even injecting signals into that same socket. Communication Associates ([www.caisolutions.com](http://www.caisolutions.com)) has test probes available in all three of the previously mentioned attenuator styles. The SXP is available in two versions, with the input pin at pin A or B.

Two gadgets that caught my eye in the Alpha Technologies ([www.alpha.com](http://www.alpha.com)) booth were the Midtronics SCP-100 AT SecurePower and DM-300 Digital Midtron battery conductance testers. Each is about the size of a conventional digital multimeter. The SCP-100 is for 6- and 12-volt batteries in the 1.25 to 25 amp-hour (Ah) range, and the DM-300 takes care of 6- and 12-volt batteries in the 5 to 600 Ah range. Conductance measurements are a tool to help identify the point at which a battery is approaching the end of its useful life, and can be made while the battery is in service.

#### Quality QAM analyzers

If your system is carrying cable modem or digital video signals, one piece of test equipment that's on the must-have list is a quadrature amplitude modulation (QAM) analyzer. All of the major test equipment vendors have one or more models available, with prices from less than \$1,500 to around \$4,000—about the same as you'd pay for a good signal level meter. In fact, some QAM analyzers do incorporate signal level meter functionality, along with digital channel power, modulation error ratio and bit error rate measurement, constellation display and a host of other features depending on make and model.

Promax ([www.promax.es](http://www.promax.es)) had a giant inflatable version of its Promax-10 QAM analyzer at the entrance to its booth, to emphasize what it calls the "smallest CATV analyzer with QAM constellation, BER and MER, spectrum analyzer, analog and digital C/N, CSO, CTB, transient detector, tilt display..." Well, you get the picture. And all for \$1,492.

Some QAM analyzers include a built-in cable modem, which allows verification that things are working from the customer's house all the way to the headend. ComSonics' ([www.comsonics.com](http://www.comsonics.com)) new Window Digi-Touch does just that, plus digital signal level, constellation and downstream parameters (MER, BER, etc.), IP status information and CMTS registration monitoring.

My show favorite? Filtronic Sigtek's ([www.sigtek.com](http://www.sigtek.com)) ST-261 portable DOCSIS protocol analyzer. This box is serious test equipment (~\$12k) that allows one to demodulate and evaluate DOCSIS downstream and upstream signals from OSI Layer 1 through OSI Layer 7. A new feature is the capability to display upstream constellation and MER on a per-cable modem basis, a very powerful troubleshooting tool.

Last but not least: Ribbons. Technically speaking, Jim Kuhns and I tied for the most ribbons (17) on our badges, although he brought an "I'm not Ron Hranac" brown ribbon from two years ago to up his total to 18. Yeah, I know what you're thinking, but Jim said it best: "I act like an adult the other 362 days of the year, but for three days during Expo..."

See you at next year's Cable-Tec Expo, June 15-18, 2004 in Orlando!

Ron Hranac is technical leader, HFC Network Architectures, for Cisco Systems, and former senior technology editor for *Communications Technology*. Reach him at [rhrnac@aol.com](mailto:rhrnac@aol.com).