

Ellisys tools help Sage create next-generation VoIP test equipment

Client

Sage Instruments Inc.

Freedom, CA
VoIP & wireless
telephony test
equipment

www.sageinst.com



Challenge

For its next generation of VoIP and wireless test equipment, Sage needed an intuitive setup with simple-to-use Windows software and robust hardware.

Solution

Since 2003, Sage has used an Ellisys USB Tracker 110 and a USB Explorer 200 Professional Edition to help design its ambitious new products.

Benefits

The Ellisys products shortened Sage's USB infrastructure development cycle. The company's next generation of VoIP and wireless telephony test equipment is now used by network operators and equipment manufacturers worldwide.

Quote

"The Tracker 110 was worth its weight in gold in isolating conflicts and patterning the bus usage. And the 200 Professional Edition's ability to create complex trigger scenarios has been crucial to our success in transitioning our products into the USB 2.0 mainstream."

Al Key, Director of Engineering,
Sage Instruments

For the past three years, Sage Instruments has been building a new generation of VoIP and wireless test equipment, sensitive enough to measure the finest nuances in telephone voice quality.

Throughout this project, Sage has used Ellisys USB protocol analyzers to help validate its ambitious designs.

Founded in 1984, Sage is located in Freedom, CA, 40 minutes from the heart of Silicon Valley. Over the years, the company carved out a solid niche in telephony test equipment. But by 2003, it was time for a new generation of equipment that could measure VoIP traffic, use a PC display and keyboard, and support the industry-standard USB interface.

So the company set out to create a new line of test equipment in its 96x product family.



The Sage 960B, the first in the new generation of ultra-sensitive VoIP test equipment.

Tracker 110 fit the bill

"We quickly learned that USB was more than we expected," says Al Key, Sage's Director of Engineering. "Because we're not a mouse or a keyboard, we had to write our own drivers. It was critical for us to know what's on the wire, so we had an immediate need for a cost-effective and simple-to-use USB sniffer."

After researching the alternatives, Sage bought its first USB protocol analyzer, an Ellisys Tracker 110, in 2003.

"The Tracker fit the bill with a combination of feature set, cost, and availability," says Key. "They have a distributor right here in Silicon Valley, and we got the unit the next day. The Tracker's ability to give 21 ns resolution was very useful; on the wire, down-to-the-microsecond intervals was a good measurement."

With help from the Ellisys unit, Sage finished the design and testing of the first new model, the 960A.



Ellisys is a leading supplier of cutting-edge USB, Wireless USB and Ultrawideband Protocol Analyzers. The company's products help hardware, software and test engineers save development effort, improve quality, and accelerate time to market. Ellisys protocol analyzers range from simple and cost-effective tools to high-end fully-featured equipment.



Since its inception, Sage Instruments has become a leader in the telecommunications and wireless test industry. Our field test sets, automated test systems, local loop test systems, and automated wireless test systems are used worldwide by leading telecom and wireless providers, manufacturers, and end users. From the beginning, Sage has used advanced technology to offer its customers unsurpassed value, performance and reliability.

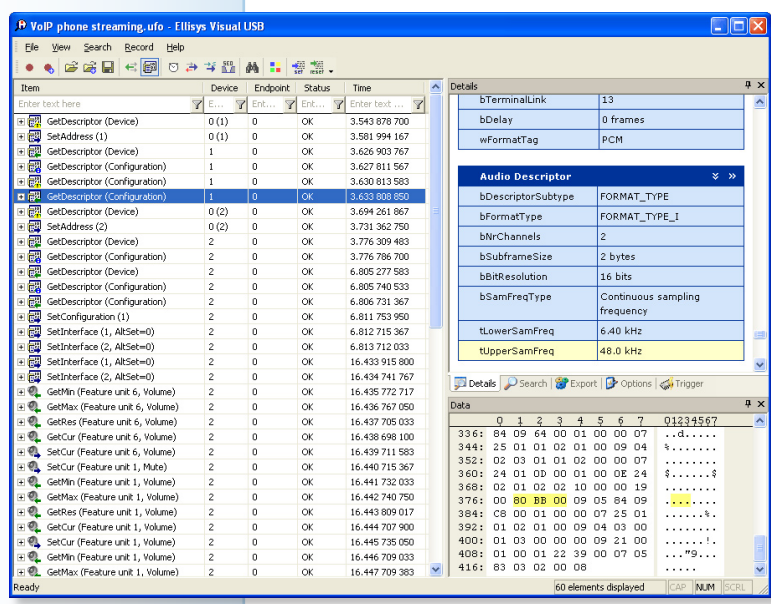
"We found the equipment works as advertised and then some, which makes me happy. It's reliable and very cost-effective."

A very demanding application

By the next fall, Sage was developing a newer version, the 960B, with three times as many telephony test interfaces, and even more sophisticated testing.

"Customers now wanted to capture the telephony and measure the voice quality off-line," says Key. "So we had to maintain command and control for a number of devices, as well as streaming real-time audio and data back, all through the USB connection."

In this demanding application, not a single packet can be lost.



The advanced capabilities of the USB Explorer 200 Professional Edition helped Sage engineers solve many issues.

"For a consumer application like a webcam, who cares if you miss a few bits? But when you're doing technical analysis of data, you need guaranteed delivery. Every bit must arrive correctly, so the integrity of the link became a high concern for us.

"The analyzer was worth its weight in gold in isolating conflicts and patterning the bus usage," says Key. "It helped us isolate problems and deal with bus load-balancing between different devices."

The need for a high-density network ops version

Customers liked the latest technology from Sage—but some needed a high-density version that could be rack-mounted in a network operations center. To make the grade, the proposed 966R had to meet the most stringent specifications. For example, it had to provide testing for industry-standard requirements such as ITU G.168 for cancelling line echo on digital networks.

Sage's engineers had heard about the advanced triggering, data capture, and filtering capabilities of the USB Explorer 200 Professional Edition. In the spring of 2006, the company acquired one to monitor and validate transactions between USB 1.1 devices and the USB 2.0 host PC.

"The Ellisis Explorer 200 met our needs exactly. And it maintained backwards compatibility with the software, so we didn't have to learn a new interface or new commands," says Key.

Tracking down anomalies

"We quickly became hooked on the triggering features for a variety of thorny development and compatibility issues," he says. "We were able to trigger the capture feature on everything from hardware bus events to embedded data patterns.

"In one case, our engineers wanted to synchronously trigger the sniffer, log the application's state, and capture an external hardware event on a deep-memory digital storage oscilloscope to unlock an anomaly we were seeing in the lab.

"We created a unique USB packet with a specific data signature to act as an event trigger on the Explorer 200. When the 200 triggered on this event, it fired off its external trigger output, allowing our other devices to capture their part of the picture as well," says Keys.

"We were able to post-mortem the data and solve the problem in a matter of hours. That kind of flexible control has been extremely useful."

Quality tech support brings repeat business

California is a long way from Ellisis headquarters in Switzerland. But distance is not an issue for Sage, another company that sells and supports equipment the world over.

On top of the local support from the distributor, Ellisis provides lifetime free software upgrades and fixes.

"We did have some initial concerns about technical support from Europe, since Switzerland is nine hours ahead of us," says Key. "But those were quickly put to rest. The Ellisis team is very responsive, and I'm pleased with the company's tech support."

After three years, how would Key sum up his experience with Ellisis?

"We found the equipment works as advertised and then some, which makes me happy. It's reliable and very cost-effective," he says. "I am a repeat customer, and I won't hesitate to be a repeat customer again, as my business needs expand."



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