

# Wisair cuts silicon development time in half with Ellisys USB analyzer

## Client

### Wisair, Ltd.

Tel Aviv, Israel

Fabless semiconductors

www.wisair.com



## Challenge

Being early-to-market with interoperable Ultrawideband and Wireless USB chipsets to be embedded in PCs, consumer electronics, and portable devices from third parties.

## Solution

Wisair used the Ellisys Wireless USB Explorer 300 to analyze Wireless USB traffic and verify that its chipset meets the standard.

## Benefits

Wisair cut its software implementation time in half, saving roughly six months development time in getting Wireless USB-compliant chipsets to market.

## Quote

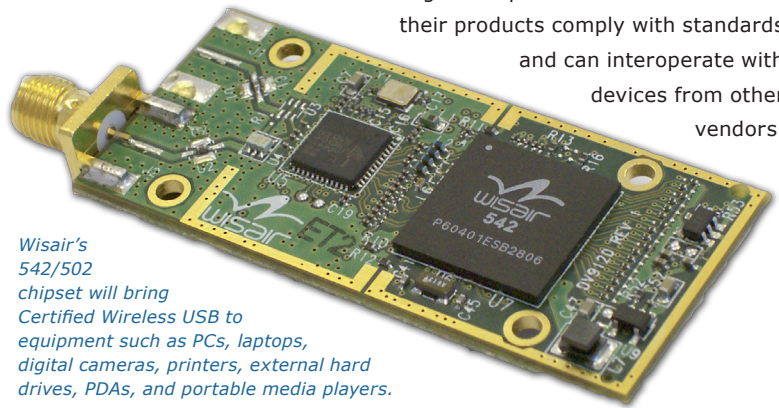
*"The Ellisys Wireless USB analyzer was a vital tool. We would have had to double our software development effort without it."*

Vered Bar, Project Manager  
Wisair

Five years after it was founded, Wisair is watching the market catch up to its predictions. The company is beginning to see Ultrawideband and Certified Wireless USB technologies rolled out in PCs, consumer electronics, and portable devices—and it wants to be ready to catch the opportunity.

The company needs to be quick-to-market with chipsets that comply with Certified Wireless USB standards and interoperate smoothly with other devices. And to help meet this challenge, Wisair uses a Wireless USB protocol analyzer from Ellisys.

Interoperability is another part of the time-to-market challenge. Companies want to ensure that their products comply with standards and can interoperate with devices from other vendors.



*Wisair's 542/502 chipset will bring Certified Wireless USB to equipment such as PCs, laptops, digital cameras, printers, external hard drives, PDAs, and portable media players.*

"No one company will exist in a vacuum," says Shimon Mantell, Wisair's marketing communications manager. "Solutions from different vendors will need to communicate with each other. The only way for that to happen is to use a tool like the Ellisys analyzer."

Wisair's Wireless USB offerings include a WUSB chip, UWB RF transceiver chip, and UWB antennas, which enable both device-side and host-side solutions based on the Certified Wireless USB standard.

Wisair offers its chipsets to brand-name manufacturers and OEMs keen to be quick to market with Wireless USB product offerings. Wisair also provides development kits and reference designs showing applications such as a UWB hub that provides wireless connectivity to wired USB devices.

## The challenge of a cutting-edge standard

Wisair faced a tough challenge in 2004 due to the immaturity of the Certified Wireless USB standard at that point.

"When we started the project two years ago, all we had was a pile of paper containing the draft standard—no commercial product, no chips, not even



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.



Wisair is a leading provider of WiMedia UWB chipset solutions for consumer electronics, PC peripherals, and mobile devices. Wisair is the first company to deliver fully-functional WiMedia-based UWB chipsets and small form-factor reference designs. Today, the fabless semiconductor company continues to focus on delivering low-cost, low-power, and high bit-rate wireless connectivity solutions.

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early implementations,” says Vered Bar, project manager for the Certified Wireless USB chip platform.

That meant initially there wasn’t any way to see how the industry had implemented the standard, especially in any fuzzy aspect where the written specifications could be interpreted in more than one way.

Unlike projects based on existing protocols, Wisair had to put considerable effort into designing, simulating, and testing the Certified Wireless USB protocol. Part of this effort involved creating a verification environment for the hardware and software.

all,” she says. “The higher the Explorer 300 got into the protocol layer, the happier we were.”

Since the Wireless USB Explorer 300 was a new product at the time, the Wisair engineers had a good opportunity to make suggestions and give feedback. “Ellisys really listened to us, put a great deal of emphasis on our input, and provided the answers with new features,” notes Bar.

### Saving six months of development

To save time, Wisair designed their Certified Wireless USB chip’s hardware and its embedded software in parallel, and then integrated the two. The protocol implementation is based on dedicated hardware engines as well as embedded software.

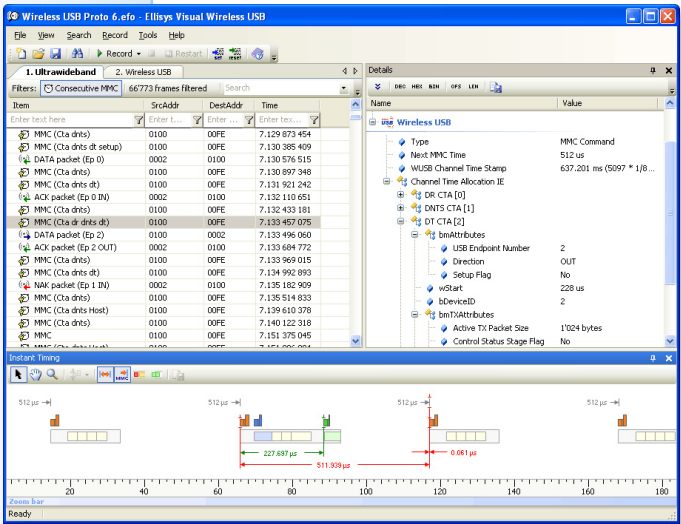
Like all fabless semiconductor firms, the company must be absolutely certain that everything works properly before “tape out” day: the point when a data tape with the final design is sent to a chip foundry for mask design and production.

After that, it takes a few months before production chips are available for final testing. “Errors at that point are very painful!” says Bar.

To avoid such errors, the Wisair engineers used the Ellisys UWB generator to perform extensive stress testing of “corner cases”—situations that may never be encountered in normal operation, such as a buffer overflow.

“The company has just as many verification engineers as VLSI designers,” says Bar. “Without the Ellisys analyzer, we would have had to double our software development effort for the protocol implementation.” In other words, Wisair would have needed another six months to finish the software phase of the project.

For Wisair, the Ellisys Wireless USB Explorer 300 went far beyond ensuring its product quality. The analyzer also saved a significant amount of time in an emerging market where rapid development is the key to success. ☺



The InstantTiming view enabled Wisair engineers to see and measure Wireless USB packet timing.

### Building a test environment

The Ellisys Wireless USB Explorer 300 protocol analyzer was an integral part of this environment. Having the analyzer to rely on was a great help, says Bar.

“It meant that we didn’t have to develop our own test software, and we had the benefit of someone else’s interpretation of the standard,” she says. “Plus, the Ellisys analyzer shows a visual decoding of the protocol. Otherwise, we would have had to work in hexadecimal.

“It was a vital tool for our integration. We didn’t have a favorite feature or function, we used them



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