

# MIZZOU

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**MEDIA** OF  
THE  
**FUTURE**



## The struggle for signal

### Receiving over-the-air TV

Story by Dale Smith | Photos by Nicholas Benner

Alumnus Richard Schneider started making TV antennas in his garage about a decade ago. Now his products are sold at major retailers and installed on millions of rooftops nationwide.

Starting in 2009, over-the-air (OTA) television signals became digital only. OTA television is free, but its signals have a reputation for breaking up often, so some people resorted to old-style rabbit-ear antennas when trying to tune the picture. The results were often just so-so. The need for better reception of OTA television signals helped Richard Schneider's [Antennas Direct](#) become one of the fastest-growing companies in the United States. He sells a type of antenna that reliably provides the vivid images of high-definition, OTA television.

Schneider, BA '92, is out to consign rabbit ears to broadcast museums. His indoor and outdoor home antennas are designed to receive the wavelengths of digital OTA television, which differ in frequency from the old analog signals. New technology has made the antennas efficient and compact (smaller than many flat-screen TVs) and allowed a more aesthetic design (think abstract black flower on a grid). They are selling like crazy. The 7-year-old company grossed \$8.6 million in 2010, could double that figure in 2011 and has been on *Inc.* magazine's list of fastest-growing privately owned companies for the past three years.

Schneider's timing has been great. Along with the move to digital OTA television, the government mandated that new televisions contain digital tuners and has subsidized conversion boxes for old TVs. Companies have spent billions upgrading digital transmission facilities. To take advantage of all this, "All you need is an antenna," says Schneider, who estimates the annual residential TV antenna market at \$250 million (7 to 8 million units). The market is growing 17 to 20 percent a year, says Schneider, who hopes to boost his roughly 10 percent market share to at least 20 percent by 2013.

## Picture this

But the point of it all is pictures and programming.

OTA high-definition television images are second in quality only to Blu-ray, Schneider says. "Using a good antenna, the quality is roughly six to 10 times higher resolution than analog and two to three times higher than cable and satellite." That's because cable and satellite companies strip information out of the original signals "to fit 10 pounds of potatoes into a 6-pound sack," but OTA stations don't.

When it comes to programming, competition is amping up and increasing demand for antennas. For starters, the FCC allows TV stations to divide the digital signal and broadcast multiple channels. Multicasting theoretically allows stations up to 100 channels, and many stations are providing two or three. Columbia offers 14 channels, St. Louis 16, larger markets 40 or so, and Los Angeles a whopping 90, Schneider says.

The OTA trend could be a big one. Great Britain started digital transmission five years earlier than the United States, and now more than 55 percent of households use its 40 channels rather than cable, Schneider says. In the United States, so far only about 15 percent of Americans are OTA-only. Schneider thinks that figure will rise to 35 percent in three to five years.

Millions already are shifting their viewing habits, opting out of cable for combinations of OTA and streaming media. Presumably fed up with paying for cable or perhaps reducing costs in a down economy, 2.07 million people nationwide cut the cable cord between 2008 and the end of 2011, according to the Convergence Consulting Group.

The appearance of streaming Netflix and Hulu worried Schneider at first, but they turned out



Got signal? If not, Richard Schneider can help.

to be a boon. “Our fastest-growing customer group consists of young people who forego cable and instead go with a hybrid of Netflix, Hulu and an over-the-air antenna.” For this group, the streamed programming from Hulu and movies from Netflix serve as alternatives to cable, and the OTA channels are free. “You can get this setup for \$10 to \$20 a month versus cable for \$100 to \$200 a month,” Schneider says. However, the offerings — including premium sports coverage — are fewer than on cable.

The antennas themselves, which go for roughly \$50 to \$150, represent the first big advances in this technology in 30 years, Schneider says.

“Through new advancements in antenna design software and analytic equipment, we can simulate and test thousands of designs in a matter of weeks rather than decades, and the results are antennas that are five to 10 times more powerful at a fraction of the size of your grandparents’ rooftop antennas.”

### Source of the signal

A mapmaker by training, not an engineer, Schneider grew his business out of an interest in home theater. After graduating from Mizzou, he worked for a company that made mapping software, including site selection for cellphone towers. The job familiarized him with the basics of signals and antennas. In his free time, he was a self-avowed home-theater geek. “In 2000, they started broadcasting over-the-air television signals in digital high definition, so I went to the store to buy antennas for my theater. But I couldn’t find any that were successful, so I had to make my own.” After studying antenna theory texts, he developed rudimentary antennas tuned to the new digital broadcast frequencies.



Richard Schneider put on his thinking helmet in 2000 to come up with a better over-the-air TV antenna. Now his business is worth millions.

Before long, word spread through online home-theater forums that there was a guy making antennas that had a better batting average than a coat hanger.

‘I didn’t want to tell my wife about it. I figured that if I could sell 20 antennas a month, I could fund my hobby.’ — *Richard Schneider*

“People would ask me to make antennas for them, but it was still just this lunatic fringe of home-theater nerds. These somewhat scruffy-looking guys would show up in the lobby at the software company and ask for me. My co-workers must’ve thought I was selling drugs out of the trunk of my car. I was just hoping to make enough to pay for my hobby.”

Schneider’s antenna ambitions cranked up when he decided that he wanted a new \$7,000 projector for his home theater. “I didn’t want to tell my wife about it. I figured that if I could sell 20 antennas a month, I could fund my hobby.” So he made a batch of 50 antennas, put up a basic website and sold out quickly. Another larger batch sold out. And another. “I had to take the site down. There was only so much I could do in my garage.” In 2003, not finding a U.S. manufacturer willing to produce his small orders, he ordered 1,000 units from a Taiwanese company.

“The first two years we were in a perpetual state of back order.” In 2003, company revenues were \$35,000. By 2008, they were \$3.5 million, and the company projects \$17 million to \$19 million for 2011.

In January 2011, Antennas Direct shipped 55,000 units, some to major retailers, including Best Buy, Costco and Target. “We’ve crossed the line now from hobbyists and the lunatic fringe into the mainstream. Regular people are ready.”

**Share your comments with Mizzou magazine at [Mizzou@missouri.edu](mailto:Mizzou@missouri.edu).**

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