

WIRELESS ANTENNA: NO HEAD GAMES HERE

By Glenn Bischoff

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When the FCC in July ordered wireless carriers and handset manufacturers to make digital phones accessible to the nation's 6 million hearing aid users, it was music to the ears of two companies that believe they have just what the industry needs.

The order requires wireless carriers to make available at least two compliant handsets for each air interface system, including CDMA, TDMA and GSM, within two years. The compliant handsets must provide both reduced radio frequency interference and telecoil coupling compatibility. (About one-quarter of all hearing aids used in the U.S. have telecoils, which eliminate unwanted ambient noise.) The Vortis antenna, developed by San Francisco-based Myers-Johnson and manufactured by Centurion Wireless Technologies in Lincoln, Neb., addresses the RF interference requirement.

The Vortis array antenna transmits a signal that is the polar opposite of the signal being transmitted by the handset's integrated antenna. Because they are 180 degrees out of phase, the signals cancel each other out, a phenomenon known as a null. The net result is that the RF emissions are redirected away from the user's head—and the hearing aid—resulting in a 30-decibel reduction in interference, said Jim Johnson, president and CEO of Myers-Johnson.

Because the signal is redirected and not absorbed by the user's head, a corollary benefit ensues, said Johnson: Signal strength can be improved by as much as five decibels, compared to an omni-directional antenna. "If you can eliminate that waste, you gain more energy for use in the uplink," he said.

Myers-Johnson has been developing the Vortis for about three years. Along the way, Johnson realized that although Myers-Johnson had the engineering of the antenna well in hand, it would need help manufacturing the unit. He eventually turned to Centurion, one of the world's leading antenna manufacturers, after discovering during a patent search that the company had developed its own similar technology.

"Since we were doing similar things, it made sense that we would get together," Johnson said.

According to Steve Bowles, Centurion's vice president of sales and marketing, Centurion brings an understanding of what it takes to manufacture an antenna and bring the product to market that engineering firms often do not share. "Small, subtle changes in antenna design can result in very large changes in antenna performance," he said. "This partnership is a very good fit for both companies."

One of the Vortis' most commercially appealing aspects is its modular design. The antenna is embedded within a battery back-plate, so all a user has to do is pop off the back-plate that came with the handset and pop the Vortis into place. Instantly the handset is hearing aid compatible without affecting any of the aesthetics. "The only difference you'll see is two antenna nubs sticking up instead of one," Johnson said.

According to Johnson, the Vortis will be rolled out at the end of this month and will be in carrier retail locations by the end of the year. No carriers have bought the product yet, but Johnson said talks are under way with Cingular Wireless (“They are on file with the FCC as being an advocate of the technology”), AT&T Wireless and Sprint, as well as handset makers Nokia, Motorola and Panasonic.

The first Vortis antennas will be Nokia compatible, Bowles said.

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