

A Visit to **ALTUS** Positioning Systems



Production Support Manager Ellery Mitchell (left) and CEO Neil Vancans in the Los Angeles corporate laboratory.

For Olympians *“Citius, Altius, Fortius”* is Latin for “faster, higher, stronger.” For surveyors, **Altus** Positioning Systems draws its name from the Latin word meaning high and deep. High (in terms of their GNSS satellite-related equipment) and deep (from the heavyweight lineup of industry veterans who make up the company),

their mission is straightforward—to design a first-class positioning system to meet all the needs of today’s surveyors. It sounds simple, but it’s not.

I first interviewed Altus CEO Neil Vancans (pronounced van SANZ) when he was based in Torrance, California as a management board member of Leica Geosystems, heading up Leica’s worldwide GPS business. He was with Wild/

>> By Marc Cheves, LS



Mitchell explains to editor Marc Cheves how Altus uses Camstudio to develop assembly procedures.

Leica for nearly 20 years. I interviewed Vancans again when he was heading up Thales Navigation's Professional Products Group in Santa Clara, California. Since that time he has consulted with numerous companies in our industry.

We caught up with Vancans again last year at APS's office in Los Angeles. "Altus Positioning is a new company composed of old guys," said Vancans with a smile. The company has distilled its combined knowledge into its first product, the APS-3 GNSS receiver.

Originally from the UK, and unique amongst positioning industry CEOs, Vancans is an actual surveyor. Because he understands how surveyors work, he has been able to put his experience to good use over the years. He also understands the product development process and the distribution strategies needed to bring products to the survey market.

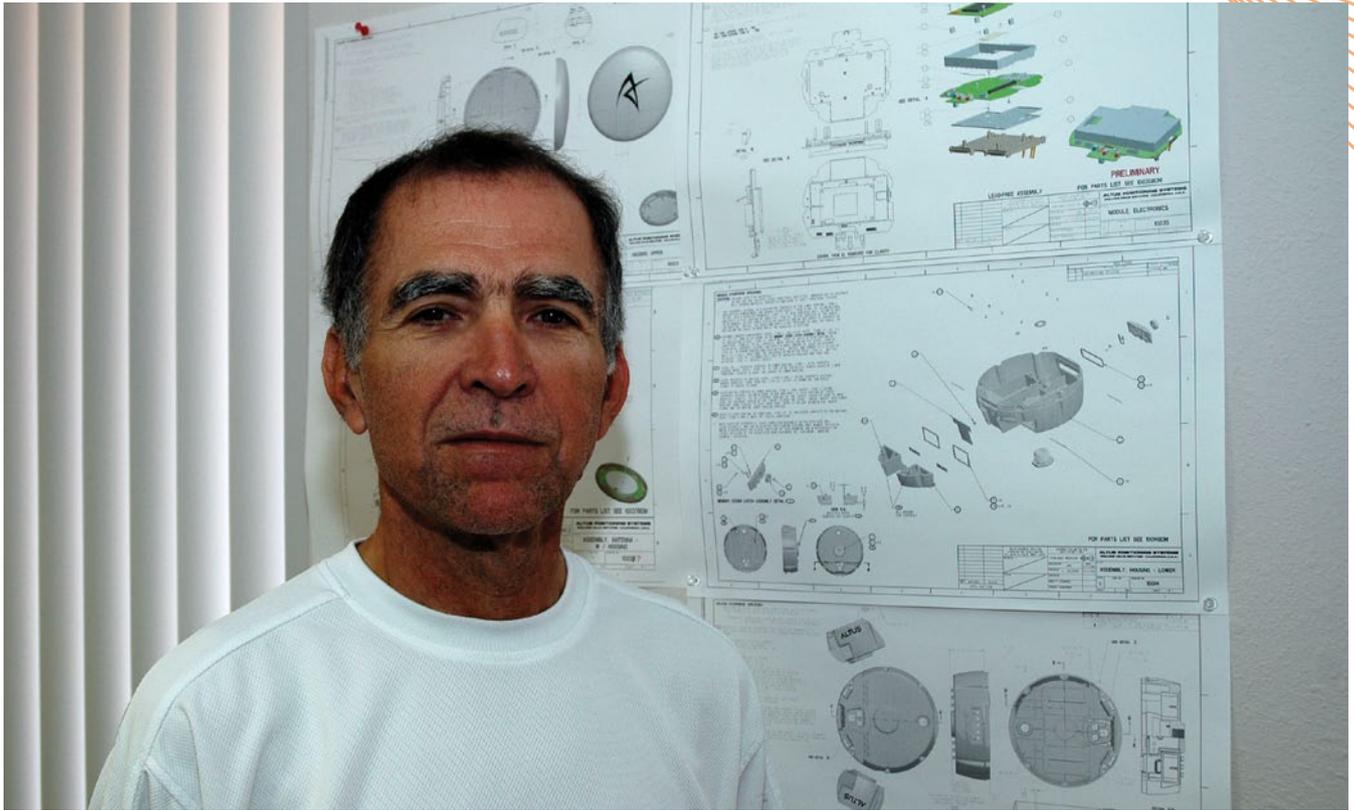
A recent addition to the staff is Barrie Hogarth, VP of Business Development. Hogarth is also a surveyor from the UK, with experience all over the globe. He is a former Senior Instructor of Survey at the British Army's School of Military

Survey. Hogarth has worked for Ashtech, Javad Positioning Systems, Thales/Magellan, and immediately before coming to Altus, he was with ArWest Communications (more about ArWest later).

All members of APS's senior staff have experience with a major surveying equipment manufacturer. Many are ex-Leica engineers who were involved in the System 500 development. Chief Technical Officer Rich Keegan, a major



Vancans discusses the critical issue of component placement and demonstrates how one screw can cause parts to interfere with each other.



Chief Technology Officer Richard Keegan

contributor to GPS over the years and holder of 20 GPS patents, is responsible for the system design of the APS-3. Keegan's history goes back to the U.S. Navy TIMATION satellite system, a forerunner of today's NAVSTAR constellation.

Simon Baksh, VP of Product Development, also has a long history in the industry. Originally from Trinidad, and a chartered surveyor there and in Canada, Baksh's background includes surveying for seismic exploration and the development of inertial systems at both Applanix and NovAtel. Baksh designs specifications for APS that meet the needs of the customers, and ensures that the equipment meets that spec. The company is proud of the result.

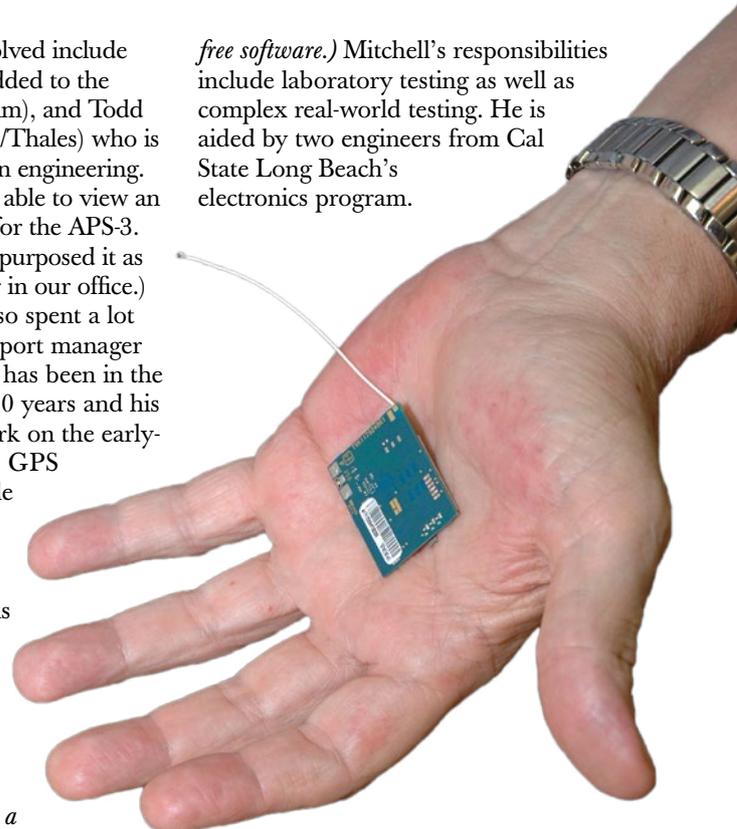
Ed Wedermeyer and Jim Glover possess extensive mechanical engineering and digital design experience, and are responsible for the APS-3 housing and digital design. There is a great deal of challenge in fitting all the boards and other components into a compact housing, while not interfering with each other from an RF (radio frequency) perspective. The design can withstand the proverbial two-meter drop onto concrete.

Other industry folks involved include Chuck Neely (recently added to the business development team), and Todd Townsend (from Ashtech/Thales) who is responsible for production engineering. During our visit we were able to view an early prototype housing for the APS-3. (Being empty, we have repurposed it as a unique candy container in our office.)

During our visit we also spent a lot of time with product support manager Ellery Mitchell. Mitchell has been in the industry for more than 20 years and his background includes work on the early-day Wild-Magnavox 101 GPS receiver. He is responsible for the final assembly and testing of the APS-3, which assures that the product performs properly. Mitchell uses a cool program, Camstudio, to develop detailed procedures for each step in the production of each unit.

(Editor's note: If you have a multi-step computer process that you need to document, for example training new employees, check out Camstudio's

free software.) Mitchell's responsibilities include laboratory testing as well as complex real-world testing. He is aided by two engineers from Cal State Long Beach's electronics program.



The tiny GSM modem board



A technician makes final tweaks to an APS-3 receiver.



Simon Baksh, VP of Product Development, provides a demo at the Los Angeles headquarters.

Altus is developing a long-term partnership with the University.

A company called Meritronics builds all but the GNSS boards for the APS-3, in fact, everything for the unit is conveniently manufactured within 10 miles of APS's Los Angeles headquarters. In terms of competition from countries such as China in building GNSS receivers, Vancans pointed out that 90 to 95 percent of the product's value is in the components, while the remainder is in the labor to assemble the components. Even with China's low cost of labor, their costs to produce high-level GNSS receivers are virtually the same as in the United States.

When it comes to dealerships, plans are to have nine or ten dealers across the country. In some cases, the company will "grow" dealers to fit its needs. Altus is actively working with people laid off by other companies in forming new dealerships. In other cases Altus is represented by more established companies. Obviously, as a new company, they will

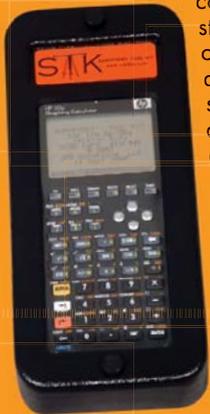
have to win customers one by one. Even so, Altus has already sold more than 100 receivers. Vancans understands that surveyors are conservative by nature and expect their gear to last a long time, all the while providing accurate answers. The company's aim is to foster trust and to develop relationships. He knows that the key to this is selecting dealers that can provide an exceptional level of service and support, and laments dealers that are driven by competition and who feel they need to provide deep discounts. Vancans knows firsthand that a customer will feel the pain if their dealer doesn't have enough margin. To this end, Altus co-located one of its employees inside its first dealer, Carlson Desktop Solutions (no relation to Carlson Software) in Austin, Texas. It just so happened that CDS employee John Clark was in the Altus office the day we were there. Clark mentioned that CDS became an Altus dealer because they knew that with surveyors, it's all about being "right" with the measurements.

The Altus team has positioned the APS-3 to deliver high-priced performance at a low price. Two receivers with everything needed to start surveying can be purchased for just over \$26K. A single receiver can be purchased for \$11K. The GPS- and GLONASS-capable APS-3 combines many features that other companies sell as options. These include an ArWest internal 1-watt digital radio that allows the user to select frequency, power, and modulation. Also standard is a GSM/GPRS cell modem, but since all areas are not covered by GSM, the UHF radio will allow users to continue working. The APS-3 is compatible with most radio types in use and can be used with many existing radios. Both the SIM card and the Data storage SD card are easily inserted into the unit without a screwdriver. In addition, the units have built-in Bluetooth for cable-free operation. The twin batteries are hot-swappable and include a "fuel gauge." Altus claims that the batteries

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Altus Positioning Systems APS-3 GNSS Receiver

are good for ten hours in rover mode and eight hours in base mode.

Another feature is the five high-viz LED lights that show system information such as on/off, satellite lock, Bluetooth synchronization, whether RTK correctors are being received, and whether data is being logged. In a neat piece of engineering, battery life is displayed on the data controller.

Altus has a rich history in surveying and GNSS but is even more fortunate in having two great partnerships, Carlson Software, which has become a leading supplier of applications software for surveying, and Septentrio, the preeminent European GNSS developer and leading collaborator with the European Space Agency on Galileo. (See Septentrio article, pp. 51-56.) The receiver board is the Septentrio 66-channel AsteRx2, capable of receiving dual frequency GPS, GLONASS and SBAS. Every receiver is built identically, so there is no dedicated base or rover—each can act as a base or a rover. Positions can be output at a rate of up to 10-hertz, very handy for stakeout and other mobile applications.

When I asked Vancans how it felt to open a company in the midst of a recession he replied, "Recession or no recession, the need for Altus was

created by the incumbents, today's dominant suppliers. This is a value-conscious, service-oriented market of highly discriminating professionals and Altus is targeted to deliver right to them!" Vancans claims that Altus is not just in the business for the money, and laments companies who are mostly driven by quarterly results. Because of his tie to surveying, his next goal is to produce a robotic total station on down the road.

Vancans wants Altus to become the surveyor's choice when it comes to gear. "Our approach is one of simplicity: everything in one package, simple to buy, simple to own and operate, and simple to keep, with no continuous fees for upgrades," he says. Vancans credits the Altus team by stressing its shared vision. Not only is the team very knowledgeable about GNSS, Vancans himself is known far and wide in the industry. Every time I mention his name, people say, "He's a good guy." While Altus may seem to be the "new kid on the block" in the geomatics industry, it's obvious by the height and depth of their expertise, knowledge of the industry, and vision for the future that only the company's products are new—for now. *A*

Marc Cheves is Editor of the magazine.