SPACENEWS

World Satellite Business Week | Hyperspectral Imaging Startup Orders First Satellites on Boeing's 502 Phoenix Platform

By Warren Ferster | Sep. 10, 2014

Built on Boeing's Phoenix platform, the HySpecIQ satellites will weigh 600 kilograms apiece and will be launched into a sun-synchronous polar orbit with an altitude of 500 kilometers. Credit: Boeing artist's concept

PARIS — Boeing has landed the first contract for its 502 Phoenix small-satellite platform in a partially vendor-financed deal with a hyperspectral imaging startup called HySpecIQ, the satellite maker announced Sept. 10 at the World Satellite Business Week conference here.

The deal calls for Boeing Space and Intelligence Systems of El Segundo, California, to deliver two Phoenix platforms equipped with high-resolution hyperspectral imaging sensors that would be ready for launch within several months of one another starting in the first quarter of 2018, said Erik Daehler, Boeing's deputy director of remote sensing 502 products.

HySpecIQ's founder and executive chairman is William Sullivan, founder of Torch Hill Investment Partners, a Washington-based private equity firm that backs ventures in both commercial and government markets.

In an interview, Sullivan said Torch Hill has previously invested in two space companies: Artel, a provider of commercial satellite solutions to the U.S. government, and Orbcomm, which operates a constellation of satellites that provide machine-to-machine messaging services.

Boeing is one of the early financial backers of HySpecIQ and will have exclusive responsibility for marketing the hyperspectral data products to U.S. defense and intelligence agency customers, as well as international partners, Sullivan said. The arrangement is similar to the one Boeing has on the Global Xpress Ka-band communications satellites it is building for London-based Inmarsat, Boeing officials said.

In a press release, Boeing said HySpecIQ will be responsible for civil and commercial sales globally.

Hyperspectral sensors break up reflected light into numerous — in HySpecIQ's case, more than 200 — spectral bands to reveal information that often cannot be detected with the naked eye. Examples include the mineral content of soil and the physical properties of materials.

Sullivan said the U.S. government, in particular the military and the intelligence community, is expected to be an anchor customer for HySpecIQ data. Anticipated commercial customers are the oil and gas exploration, mining and agriculture industries, Boeing said.

HySpecIQ intends to finance the project with a mix of private equity investment, to be raised in three tranches, and debt, Sullivan said. The venture has received commitments for the first tranche from Boeing and multiple "very large private equity entities," he said, declining to provide specifics.

The venture also hopes to get financial help from the U.S. Export-Import Bank, which provides loans to support American companies in export markets. HySpecIQ likely would have to move offshore to qualify for such a loan, and Sullivan said possible future homes for the company are Dublin and Luxembourg.

Neither Sullivan nor Daehler would divulge the value of Boeing's contract, or whether HySpecIQ got a bargain price for being the inaugural customer for the 502 Phoenix platform, designed by Boeing's Phantom Works advanced technology development arm in Huntington Beach, California. Boeing unveiled the product line in 2013, hailing Phoenix as a low-cost, highly flexible, reprogrammable satellite that can be tailored to a wide variety of missions.

The HySpecIQ satellites will weigh 600 kilograms apiece and will be launched into a sun-synchronous polar orbit with an altitude of 500 kilometers, Daehler said. No launch vehicle has been selected, but several options are available, he said.

Daehler said Boeing is running a competition to build the sensor, whose requirements have been verified by the U.S. military, and hopes to make a selection within the next couple of months. He declined to identify the competitors.

However, Daehler and Sullivan said the U.S. Defense Department's experimental TacSat-3 satellite, which launched in 2009, served as a critical pathfinder for HySpecIQ. That satellite carried a high-resolution hyperspectral sensor dubbed Artemis that was built by Raytheon Space and Airborne Systems of El Segundo.

Sullivan added that hyperspectral remote sensing proved its military and intelligence value in Afghanistan, albeit from airborne platforms. That, along with recent advances in cloud-based data storage and computing power for imagery processing, made the project viable, he said.

"It's the coming together of all these events that allowed private financing, plus, importantly, the U.S. government is more open to commercial imagery," Sullivan said.

In addition to building the satellites and marketing data to U.S. government customers, Boeing will be responsible for operating the satellites, and downlinking and processing the data at an existing Boeing facility in Colorado Springs, Colorado.

Boeing plans to begin ordering components for the satellites in January, Daehler said.

The project has been in the works for about two years, Sullivan said. HySpecIQ has applied for a remote sensing operating license with the U.S. Department of Commerce and is awaiting a decision, Daehler said.