SSL (Space Systems / Loral)

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This has been a busy year for the industry and a highly successful year for SSL. At the time of this writing, SSL counted eight new contract awards for geostationary (GEO) satellites, and expanded its reach into Low Earth Orbit (LEO) Earth Observation (EO) satellites with a contract to build a constellation of innovative small satellites. The company also saw five SSL-built satellites successfully launched, with the expectation of one more launching prior to the end of 2014.

In additional to its commercial successes, in 2014 SSL continued to work with NASA, DARPA and the U.S. Air Force to deliver cost-effective solutions to U.S. government programs. SSL also completed the construction of a new spacecraft test facility, which was dedicated to the memory of its former Chief Engineer, Bob McFarland, who left behind a legacy of integrity and industry respect. The second thermal vacuum chamber, which starts operation at the close of this year, provides the company with added flexibility for managing satellite manufacturing schedules.

2014 was a year when SSL expanded its customer base with contract awards from companies in Indonesia and Bulgaria. The company also continued to build on relationships with four returning customers, reflecting the teamwork and trust that has been established over the years.

Photo of AsiaSat 8 during its build process. Photo courtesy of SSL.

Among the first-time SSL customers, Bank Rakyat Indonesia (Persero) Tbk (BRI) is the world's first bank to acquire its own communications satellite. BRISat will serve the people of Indonesia with a dedicated platform for banking services across the archipelago of islands where the bank provides service to even the most remote areas.

Bulgaria Sat is another first-time satellite buyer that contracted with SSL in 2014. The company is an affiliate of Bulsatcom, which is a leading telecommunications company and the largest provider of payTV services in Bulgaria. BulgariaSat-1 will provide Direct-To-Home (DTH) television service in the Balkan region.

Most recently, SSL announced its eighth GEO satellite contract award, which is with an undisclosed customer that is also new to working with SSL. Among returning customers, SKY Perfect JSAT (SJC) selected SSL to build JCSAT-15 and JCSAT-16, which will provide video distribution, data transfer communications, and back-up service capabilities to meet the growing demand for telecommunications infrastructure in the Asia Pacific region. The company also has a third satellite for SJC, JCSAT-14, in production at SSL's Palo Alto, California, manufacturing facility.

EchoStar contracted with SSL for EchoStar XXIII, which will be the 13th SSL-built satellite in the EchoStar fleet. The spacecraft, which is planned for launch in 2016, will have the capability of providing high-power, flexible Ku-band service from any of eight different orbital slots.

In August, long-term customer Intelsat awarded a contract to build Intelsat 36 to SSL. This will be the 52nd SSL-built satellite for Intelsat and will provide media and content distribution services in Africa and South Asia.

For Spanish operator, Hispasat, SSL was selected to build Hispasat 1F, a multi-mission satellite that will provide service for television, broadband,

Artistic rendition of BulgariSat-1. Image courtesy of SSL.

corporate networks, and other telecommunications applications in Europe, North Africa, North America, and South America. Hispasat 1F will replace Hispasat 1D and will be the third SSL-built satellite in the HISPASAT fleet.

In part, the company attributes its success with so many satellite operators to its focus on its customers' overall business plan and not only the mechanics of building a satellite that delivers the desired service. The company assists its customers with launches, ground stations, internship training programs, and financing, among other important factors. In 2014, SSL completed and delivered five new satellites, which were successfully launched and are now performing on orbit. With a sixth launch planned for the end of the year, there will be 78 SSL-built satellites currently on orbit.

2014 marked the company's first launch on the SpaceX Falcon 9, and a new record of two satellites for the same company launched within a month of one another from the Cape Canaveral Air Force Station in Florida. The satellites were both for Hong Kong-based AsiaSat, which provides broadcasting, telecommunications, and broadband services across the Asia-Pacific region. SSL has now provided four satellites to AsiaSat and has an additional satellite, AsiaSat 9, currently under construction in its Palo Alto manufacturing facility.

Other launches during the year included satellites for ABS, Optus, and Intelsat, all of which were launched on the Ariane 5 launch vehicle. A satellite for DIRECTV was delivered to launch base in Kourou, French Guiana at the time of this writing, and is expected to launch before the end of the year.

With its ongoing integration with parent company MDA, SSL is growing the value the company can bring to a broad range of customers in both government and new space arenas. Skybox, now a part of Google, selected SSL to build 13 small satellites for an advanced constellation for Earth imaging. This is the first contract for SSL-built LEO spacecraft since 2000. As part of the award, SSL also obtained the license to use the small satellite technology in other applications, opening up a new product line for SSL. The company's location in the heart of Silicon Valley positions the company well to help innovative startups, such as Skybox, to benefit from SSL's long heritage in space.

SSL has a history of leveraging its commercial platform to help support NASA initiatives for cost-effective solutions. The propulsion system for NASA's

Artistic rendition of the PODs system for the company's 1300 platform.

highly successful Lunar Atmosphere Dust Environment Explorer (LADEE) is an example of this collaboration—SSL has continued working with NASA on hosted payload accommodation development for the Laser Communications Relay Demonstration (LCRD) in a program for NASA Goddard.

In 2014, SSL was one of the companies selected by the U.S. Air Force for a Hosted Payload Solutions (HoPS) indefinite delivery/indefinite quantity contract, which pre-qualifies SSL to bid on opportunities for hosted payloads, which can help the U.S. Government get a variety of missions to orbit by integrating them with commercial satellites. SSL was also one of the companies awarded the first task order under HoPS to assess hosting options for NASA's Earth Venture Instrument TEMPO (Tropospheric Emissions: Monitoring of Pollution).
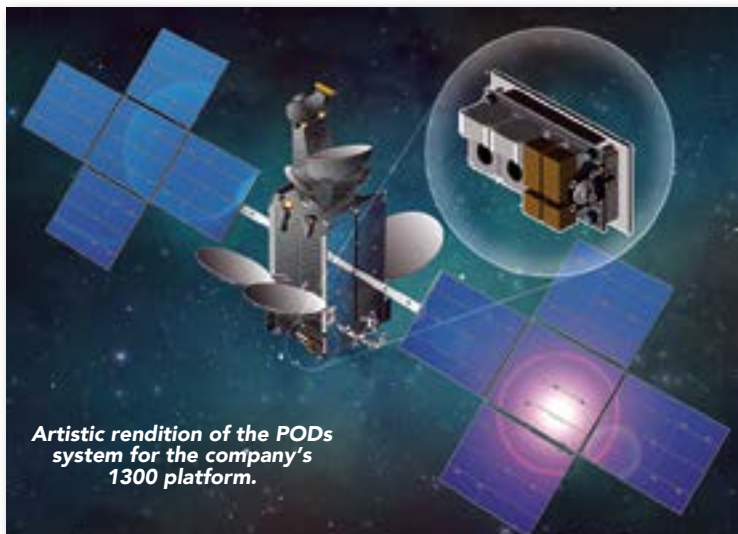
In 2014, SSL also began providing advanced robotics capability based on MDA heritage robotics technology, and the company is currently studying system concepts and key technologies for NASA'S Asteroid Redirect Mission, which is expected to be a key part of the agency's path to sending humans to Mars. SSL is working with MDA to conduct two studies; one that examines using MDA robotic technology for asteroid capture, and one that examines adapting commercial spacecraft for the Asteroid Redirect Vehicle. In another collaboration with parent company, MDA, in 2014 SSL announced that it entered into the next phase of designing and integrating the first Payload Orbital Delivery system (PODs) accommodation on the SSL 1300 platform—which would enable affordable delivery of small free-flying spacecraft beyond LEO for future servicing, operational, science, and technology space missions. Designed for DARPA, the PODs program allows a free-flying satellite to be jettisoned by an SSL-built satellite, to then fly on its own.

In October 2014, SSL celebrated the completion of its new test facility and second thermal vacuum chamber. The facility—dedicated to SSL's former chief engineer and vice president of Mission Assurance, Bob McFarland—represents a significant capital investment and will allow SSL to improve the efficiency of satellite manufacturing and support larger volumes of satellites in the factory with shorter schedules. During the dedication ceremony, SSL president John Celli drew attention to Bob McFarland's many years of commitment to quality and reliability. The test facility is named after Bob to acknowledge that focus on quality and recognize the critical role that a thermal vacuum chamber plays in the validation of spacecraft quality and readiness.

The new front-loading chamber measures 50 feet in length and 30 feet in diameter and helps SSL accommodate 10 to 12 satellite contract awards per year without needing to outsource the thermal vacuum work to a third party and without impacting the schedule of other satellites in the factory.

Industry researchers have noted that the coming year should be another strong one for satellite manufacturers, as demand for replacement satellites and expanded services drive the commercial GEO climate. In addition to these core business opportunities, SSL continues to leverage the synergies that it shares with MDA to enter new markets and bring the benefits from its extensive expertise and competencies into a broad range of disciplines for both government and private industry.

This year's expansion into new regions and markets is likely to serve as a catalyst for future SSL growth for many years to come.