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**YIR: Space Systems/Loral**



**2008: An exceptional year for us... to date this year we have signed seven contracts to design and build high power commercial satellites. We are very pleased to add SES and Hispasat to our family of Blue Chip customers. In addition to the contracts with these European companies, we also won awards for new satellites for ViaSat, EchoStar and Intelsat.**

In anticipation of this growth, over the past year we expanded and updated our satellite manufacturing facilities and increased in-house RF component manufacturing. Now we can easily accommodate our industry leading backlog with 20 satellites in progress. Our backlog includes some of the world's most advanced satellites for MSS, Broadband, DTH, DARS and FSS.

We are pleased with the successful delivery and launch of five **Space Systems/Loral**-built satellites to date in 2008. These include the world's largest and most complex satellite for delivering mobile services, and a 20-kW satellite that now enables extensive high definition television programming.

In terms of technological advances, Space Systems/Loral continues to build the world's most powerful satellites with eight 20-kW satellites currently in our backlog. We originally developed this high power capability for the direct to user customer for television, radio and broadband, but we are finding that FSS operators can also benefit from bigger, more powerful satellites that lower their capex per transponder, and give them a competitive advantage in the market.

In terms of other technology advances, we are currently building a satellite that will carry the world's most advanced on board internet router as a hosted payload. The program, called **IRIS**, will bring the benefits of the Internet model to satellite communications systems. We are very excited about IRIS, which is a *Joint Capability Technology Demonstration (JCTD)* with **Intelsat General** and the **Department of Defense (DoD)**. Once the technology is assessed, the U.S. Army, Air Force, Navy, Marine, Coast Guard and NATO forces could leverage its capability to enhance military network-centric operations.

Space Systems/Loral also built the **ICO-G1**, the new MSS satellite that was launched last April and has

completed in orbit testing with flying colors. It is a good example of our low risk, modular approach to new technology insertion, based on our heritage, space-proven building blocks.

ICO-G1 was the world's largest satellite ever launched. To date, it is the only on-orbit implementation of two-way *Ground Based Beam Forming (GBBF)*, which was developed here at Space Systems/Loral in conjunction with **Hughes Network Systems**. We have a patent pending for the invention. GBBF provides unprecedented flexibility to meet a satellite operator's changing goals and business plan without the cost and complexity of on-board processing.

With multiple beams, a satellite such as ICO-G1 can provide unique communication services to a variety of geographical locations and it can make changes based on demand, in order to put the satellite power where it is needed the most, maximizing the number of customers it can serve.

This spring, the whole industry watched a breathtaking video of the ICO-G1 satellite's 12 meter antenna reflector, which was stowed like an umbrella for launch and then unfurled once the satellite reached its orbital slot. The satellite had space hardened cameras mounted to it so that it could capture the motion, in real time, of the reflector deployment.

**ICO** is now using this advanced satellite to deliver a mobile interactive media service called **ICO mim™**. Initially it will provide mobile video, interactive navigation, and emergency communications services to consumers.

**2009:** 2008 was a very robust year with around 25 satellites expected to be ordered by year's end. With the problems in the financial markets and the state of the world economy, we are not expecting to have as many new satellite orders in 2009, but today's providers of satellite services will continue to fund replacement satellites as needed to maintain revenues and meet customer demand. It's possible that some of the start up companies that are waiting for financing may have to be patient as the capital markets rebound, but we have been through times like this before.

We expect 2009 to be a record year for the number of SS/L-built satellites that will be launched into space. When **TerreStar-1** is launched, we will break our own record for the largest satellite ever delivered into space and it will have an 18-meter unfurlable antenna reflector, which is the largest ever built for a commercial satellite.

This year we noted an increased interest, from both civil and military organizations, in the schedule and cost advantages of using commercial satellites. Governments around the world are already among the largest users of FSS transponders and they are increasingly looking at using hosted payloads. IRIS, the internet router in space that we are implementing on Intelsat 14 is a good example of this. As a result, in 2009 I think there will be more focus on hosted or piggyback payloads as a way to get government programs into space.

Sharing space on a satellite bus that also might be used for commercial services is a very cost-effective way to get government payloads into orbit on a tight timetable. Satellite manufacturers are uniquely positioned to add value to both commercial operators and government agencies by pairing requirements early in the planning stage so that organizations can consolidate resources, making the most of their infrastructure investment, which includes launch vehicle pricing. Increased use of commercial satellites and commercial practices are good solutions in these budget constrained times.

#### *About the author*

*Arnold Friedman is senior vice president of marketing and sales at Space Systems/Loral (SS/L) and vice president of business development at parent company, Loral Space & Communications (NASDAQ: LORL). He is responsible for all of SS/L's commercial sales and marketing activity around the globe, including activity in more than 25 countries in the Americas, Asia, and Europe. At SS/L, Mr. Friedman has pioneered new satellite applications sales in digital radio, broadband Internet, local television, and next generation mobile satellite services, and under his direction the company has established itself as the world's leading provider of high-power commercial satellites. Friedman rejoined SS/L in 2002 after a two-year hiatus as president of an*

*international company formed to provide new satellite-based consumer television and telecommunications services. Prior to that, Mr. Friedman was vice president, ventures, for SS/L from 1996 to 2000. In that role he directed sales campaigns to established and start-up companies and evaluated the potential of new technologies and investments. Mr. Friedman is on the board of directors of XTAR, LLC, a satellite communications company that provides services in support of diplomatic, military, and security communications worldwide.*

#### *About the company*

*SS/L is a premier designer, manufacturer, and integrator of reliable communications satellites and satellite systems for an international roster of commercial and government customers. Customers use SS/L systems to deliver services such as broadcast and cable programming, broadband digital communications, direct-to-home TV, defense communications, environmental and meteorological monitoring, air traffic control, digital audio radio and mobile satellite services. The Company is headquartered in Silicon Valley, renowned incubator of technological advances, where we employ some of the brightest creative minds in the industry. At SS/L, diverse interdisciplinary teams work closely with our customers, applying sound scientific principals with creativity and imagination, to bring sophisticated communications systems to life.*

