

December 2014

AEROSPACE

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2014

IN REVIEW



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Continued growth for satcom

by Thomas C. Butash

The Communications Systems Technical Committee is working to advance communications systems research and applications.

The commercial communications satellite industry was on track for continued growth this year, with companies focused on innovative systems with greater effective capacity and lower on-orbit costs. Investments increased in flexible payloads capable of allocating bandwidth and power across multiple beams in response to dynamic service demands. There is also growing interest in **all-electric** and **hybrid propulsion** systems that will lower launch costs.

Through August, 18 geosynchronous communications satellite contracts were awarded: six to Space Systems/Loral, five to Thales Alenia Space, three (including two with all-electric propulsion) to Airbus Defence & Space, two to Dauria Aerospace and one each to Orbital Sciences and Boeing. This pace suggests 27 satellite awards by year's end, indicating continued expansion over the 25 awards in 2013 and 16 in 2012. A mid-year Satellite Industry Association report confirmed industry expansion outpacing global economic growth.

Interest in high-throughput satellites to provide **broadband** service increased, with Euroconsult predicting growth through 2014 and beyond. Several HTS contracts were awarded — Intelsat 35e, SES-12, Eutelsat 172B and HYLAS 4 — while other satellite broadband access systems also expanded.

O3b became a global broadband access service provider with the July launch of its second flight of four satellites. The most intriguing entrant into the market came with Google's backing of WorldVu Satellites, which acquired Ku-band spectrum originally allocated to SkyBridge, to launch a Teledesic-like low-Earth-orbit constellation of 360 satellites for global Internet service.

The year opened with Lockheed Martin Space Systems' announcement of plans to re-enter the commercial satellite communications market, followed by Orbital Sciences' and ATK's second quarter announcement of their planned merger as Orbital ATK.

Industry expansion continued with Indonesian bank BRI's selection of SSL to build BRIsat to provide dedicated satellite communications for its 9,800 branches, 100,000 electronic channel outlets and 50 million customers. BRI thus becomes the first bank to procure a dedicated satellite for its network operations.

SpaceX continued to be a disruptive force in **launch services**. With 11 Falcon 9 launches through August and the most affordable ride for five metric tons to geosynchronous transfer orbit, SpaceX reinvigorated competition. Eutelsat and SES pressured the European launch industry to match SpaceX's prices. SpaceX challenged United Launch Alliance's long-running duopoly on U.S. government satellite launches and received certification to compete in the Evolved Expendable Launch Vehicle program. ULA, International Launch Services and ISS Reshetnev are considering dual-launch services to remain competitive, while Ariane-space is tuning its dual-launch model. Interest in all-electric or hybrid propulsion satellites, facilitating either Falcon 9 or dual launches, heightened with the Eutelsat 172B, SES-10 and SES-12 awards and investments by Airbus Defence & Space, SES and Thales Alenia Space in all-electric systems.

Flexible satellites, capable of allocating bandwidth and power in response to changing demands, although not entirely new, saw a renaissance in capturing almost 30 percent of the awards through August. Intelsat 35e EpicNG and SES-12, in particular, will employ digital onboard processing to maximize bandwidth distribution flexibility.

Alphasat's Aldo Paraboni Q/V band payload experiment will pave the way for increased HTS capacity. And Inmarsat, in response to the disappearance of the Malaysia Airlines plane, offered free communications for worldwide aircraft tracking over its global satellite network, thus facilitating a "black-box in the cloud" system for preventing future tragedies like the loss of flight MH370.

The U.S. Air Force Space and Missile Systems Center and its contractors completed Protected Tactical Service Design for Affordability studies, paving the way for 2015 flight demonstrations and next-generation military satellite communications architecture definition. SMC's Hosted Payload Solutions awards facilitate simplified contracting for such cost-saving arrangements.

Long-awaited U.S. export control reform became a reality as most satellites were removed from the State Department's U.S. Munitions List and transferred to the Commerce Control List. ▲



SSL

Space Systems/Loral was selected in June to build Hispasat 1F, a multibeam communications satellite for the Hispasat Group.