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Worldwide Satellite Magazine

Vol. 2 No. 11



Satellite Radio

Your Satellite Connection to the World

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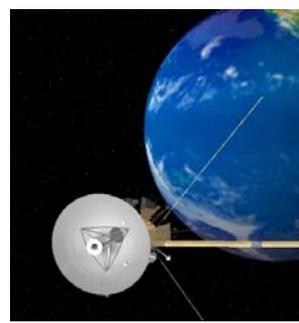
Satellite radio is booming in the U.S. XM and Sirius report a combined subscribers base of over 4 million. But can they make a profit?



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NOTES FROM THE EDITOR



Satellite Radio is Booming

We focus this issue on a growing market—satellite radio. Our content almost exclusively deals with this hot market. Providing different perspectives on the subject are our regular contributors, Howard Greenfield, Chris Forrester and Bruce Elbert.

Indeed, satellite radio is booming. Just in the last year, subscriber numbers in the U.S. more than doubled from two million to over four million. Satellite radio is also the second fastest rate of adoption by consumers, achieving 1 million subscribers in less than 18 months (a feat surpassed only by DVDs). Just to give perspective on this accomplishment, when it was first introduced it took radio and TV over three years to reach a million sets— satellite radio did that in half the time.

The question on everyone's mind, though is whether satellite radio can ultimately deliver profits. The answer to the questions lies in one of the articles in this issue. So read on.

Just to give you all a heads up—we will be featuring HDTV in our April issue. HDTV along with satellite radio have been highly touted as the future of satellite services. This issue and the next should provide a lot of fodder for thought leading up to the NAB in April.

Meanwhile, the ISCe show in Long Beach, California in June is shaping up nicely. The feature on page 7 provides details of key sponsors that includes leading companies of the industry such as Inmarsat, SES Americom and PanAmSat's G2 Satellite Solutions. ISCe also announced the line-up for its Keynote session on Thursday, June 2. DK Sachdev, President, SpaceTel Consultancy will be moderating the session and speakers include Dr. Gerhard Bommas, CTO – ND Satcom AG; Mark Dankberg, Chairman & CEO – ViaSat, Inc.; Mary Ann Elliott, President & CEO – Arrowhead Global Services; Carmen Lloyd, Chairman & CEO – Iridium Satellite; Dave Ryan, President – Boeing Satellite Systems and Pascale Sourisse, Chairperson and CEO, Alcatel Space. It should be a very interesting conference. So if you haven't made your plans yet to attend ISCe in June, you should.

Virgil Labrador

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 800 Siesta Way,
 Sonoma, CA 95476 USA
 Phone (707) 939-9306
 Fax (707) 939-9235
 E-mail: design@satnews.com
 Website: www.satmagazine.com

EDITORIAL

Silvano Payne
Publisher

Virgil Labrador
**Managing Editor
 and Editor, North America**

Chris Forrester
**Editor, Europe, Middle East
 and Africa**

Bernardo Schneiderman
Editor, Latin America

Peter I. Galace
Editor, Asia-Pacific

John Puetz, Bruce Elbert
 Dan Freyer, Howard Greenfield
**Contributing Writers,
 The Americas**

David Hartshorn, Martin Jarrold
Contributing Writers, Europe

Baden Woodford
Contributing Writer, Africa

Jill Durfee
 (jill@satmagazine.com)
Advertising Sales

Joyce Schneider
 (joyce@satnews.com)
Advertising Sales

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Chris Forrester

Tel: +44 20 89 488 561

Fax: +44 20 89 406 009

Mobile: +44 77 678 10606

E-mail: chrisforrester@compuserve.com

Web: www.tvconferences.com

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Rick Felperin

Tel: +1-301-354-1691/2000 / Fax: +1 (301) 340-3169

E-mail: rfelperin@satellite2005.com

Web: www.satellite2005.com

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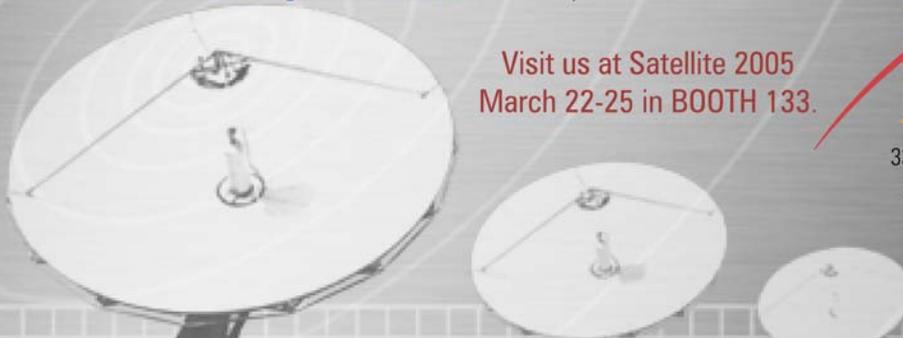
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FEATURE

Industry Leaders at ISCe

ISCe is proud to have a number of satellite industry leaders as key sponsors of the upcoming 4th Annual ISCe Conference and Expo, May 31 to June 2, 2005. These companies and organizations that have generously committed to ISCe are essential to the success of the satellite communications industry.



Inmarsat has been building its fourth generation satellites, the Inmarsat I-4 satellites, which will be 100 times more powerful than the present generation and BGAN, the Broadband

and Global Area Network, will provide at least 10 times as much communications capacity as today's Inmarsat Network. On March 10, late in the afternoon, at Cape Canaveral, Florida, Inmarsat will launch I-4 F-1, among the largest and most powerful commercial communications satellite ever built, weighing in at about 6 metric tons. Later this year, I-4 F-2 will lift-off near the equator, in the Pacific Ocean, and early in 2006, I-4 F-3 will be launched. When operational, these next-generation satellites will provide worldwide mobile broadband service at rates up to 432 kbps, forward/return. Under each satellite will be 228 spot beams, each of which is 500 miles in diameter.

Especially for their government, bank, and security customers needing the strongest encryption, Inmarsat is working with various companies to ensure the superior encryption products can secure transactions and data communications over the new service. Information Assurance, which is critical to ensure the protection of the network and confidentiality of information, is also a key consideration. The Telemetry, Tracking & Control links that operate the I-4 satellites are encrypted to protect the satellites and the network.

A pioneer of global mobile satellite communications, Inmarsat stands at the forefront of 3G wireless telephony, capitalizing on almost a quarter of a century's experience to deliver broadband communications solutions to enterprise, maritime and aeronautical users around the globe.

"ISCe provides industry leaders and government decision-makers with an invaluable opportunity to get ahead of the trends and challenges facing the space sector," expressed Robert Demers, Vice President, Federal Solutions for Inmarsat, Inc. "The quality and level of attendees to this insight-packed conference makes ISCe the 'must-attend' West Coast event for the industry and government alike." www.inmarsat.com

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SES AMERICOM successfully launched AMERICOM-12 (AMC-12). This advanced, high-powered C-band satellite will serve local, transcontinental and transoceanic customers throughout the Atlantic Region, including North

America, the Caribbean, South America, Europe and Africa — and provide links to the world's premier regional satellite systems.

The largest supplier of satellite services in the U.S., SES AMERICOM is recognized as a pioneer of global satellite communications services. Established in 1973, the company currently operates a fleet of 16 spacecraft in orbital positions predominantly providing service throughout the Americas, and provides end-to-end telecommunications solutions to any region in the world. With coverage of every region of the world and access to the leading fleet of geosynchronous communications satellites, AMERICOM GOVERNMENT SERVICES provides

highly secure, fully integrated communications solutions, globally. AMERICOM GOVERNMENT SERVICES has been proud to serve both civilian and defense-related government agencies and their contractors.

"SES AMERICOM is pleased to be a sponsor of ISCe's fourth annual satellite and communications conference," stated Monica Morgan, Vice President, Corporate Communications for SES AMERICOM. "ISCe provides a valuable opportunity for anyone interested in learning about new technologies, corporate and business strategies, as well as government and military opportunities and needs." www.ses-amicom.com



G2 Satellite is a responsive, innovative company with a deep heritage and extensive experience serving more than 200 military and government agencies and contractors. G2 Satellite

Solutions utilizes proven, cost-effective commercial resources in space and on the ground to create comprehensive solutions that are tailored to your communications requirements.

Providing comprehensive communications solutions is a hallmark of G2 Satellite Solutions. From distance learning to emergency response and restoral, our military and government users come to us every day with a specific service objective in mind and rely on us to identify the best approach to make it happen. We take the time to analyze your requirements, design your network architecture and implement a turnkey solution that seamlessly incorporates satellite bandwidth, ground equipment, network operations and general business support.

Its parent company, PanAmSat Corporation, is the largest U.S. Company to operate a global fleet of satellites. As part of its goal to provide superior satellite services to U.S. and allied military, government and homeland

FEATURED EVENT

security users, PanAmSat created G2 Satellite Solutions in 2003 by uniting Hughes Global Services (HGS), ESATEL Communications, and PanAmSat's Government Services Unit.

"G2 Satellite Solutions is proud to be a sponsor of ISCe 2005 and support ISCe's efforts to keep satellite industry businesses current with the latest regulations, technology, and opportunities affecting them," stated Kay Sears, Senior Vice President of Sales & Marketing, G2 Satellite. www.g2sat.com



Sponsor of ISCe's Welcome Luncheon on Tuesday is the California Space Authority (CSA), which has made it a goal to support international business develop-

ment for the California space enterprise community. With 24% of the global space market in 2002, California currently plays a major role in worldwide space enterprise. "The International Satellite and Communications exchange conference has always been a rallying point for this effort," stated Andrea Seastrand, Executive Director, who will introduce Keynote Speaker, FCC Commissioner Jonathan Adelstein at the luncheon.

Governed by a statewide board of directors, the California Space Authority (CSA) is a nonprofit corporation representing the commercial, civil, and national defense/homeland security interests of California's diverse space enterprise community in all four domains:

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industry, government, academia, and workforce. CSA is a member-based "enterprise" association working closely with stakeholders statewide to facilitate California's space competitiveness and vitality. www.californiaspaceauthority.org

With technological and regulatory advancements occurring daily, the importance of companies and business leaders staying current is significant. Get the tools you need to develop tomorrow's satellite solutions today, at ISCe 2005. **SM**

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Cablevision to Divest Rainbow DBS Assets and Liabilities

BETHPAGE, N.Y., — Cablevision Systems Corp. said it has signed a letter of intent selling Rainbow DBS' Voom's 21 high-definition channels, its roughly 26,000 customers, a lease on satellite space owned by SES Americom, and other assets to a new private company formed by Charles and Thomas Dolan and other shareholders.

The new private company, called Voom HD, formed by certain holders of Cablevision Class B Common Stock and headed by the Dolans, will acquire the business, assets and liabilities of Cablevision's Rainbow satellite business not sold to EchoStar Communications last January 20, 2005.

Under the initial agreement, Voom HD will assume and indemnify Cablevision against substantially all of the liabilities of the Rainbow DBS satellite business existing at the closing or thereafter incurred. For Cablevision, the transaction will allow it to avoid various shutdown costs and other liabilities of the Voom service, which it would have incurred had it proceeded with its original plan to shut down the service. Cablevision said it will incur certain severance costs in connection with the transaction.

Voom HD said it is in the process of securing financing to support the ongoing operations of the business and anticipates having that financing in place by the close of the transaction. The parties have pledged to execute a definitive agreement by February 28, 2005.

On Jan. 20, EchoStar announced it purchased certain satellite assets from Rainbow DBS Co., a subsidiary of Cablevision Systems, for \$200 million. EchoStar said it purchased Rainbow 1, a direct broadcast satellite (DBS) located at 61.5 degrees West Longitude, together with the rights to 11 DBS frequencies at that location. The satellite includes 13 frequencies, up to 12 of which can be operated in "spot beam" mode.

EADS Astrium Delivers the First Inmarsat-4 Satellite

TOULOUSE, FRANCE — EADS Astrium said on it has completed production and test of the first Inmarsat-4 spacecraft, which it claims is the world's most sophisticated commercial communications satellite. The spacecraft will leave the Toulouse facility on February 5 for shipment to Cape Canaveral.

Scheduled for launch on March 10, 2005 aboard an Atlas V

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The EADS Astrium-built satellites for Inmarsat's new mobile communications Broadband Global Area Network are larger and more powerful than any other geomobile satellites (EADS Astrium/C. Mériaux photo)

All three satellites are identical and interchangeable - their coverage is programmable and can be reconfigured in orbit.

These satellites are based on EADS Astrium's Eurostar E3000 satellite platform, three of which entered commercial service in 2004. All three Inmarsat-4 satellites are equipped with electric propulsion system. Their 45m long solar array generate 14 kW of electrical power at beginning of life and the spacecraft weighs approximately 5,940 kg at launch.

The main body is 7 meters high and the unfurlable antenna reflector has a diameter of about 10 meters. EADS Astrium said its facilities in the UK, Germany, Spain and France have contributed to the design and manufacture of the highly innovative spacecraft and provided most advanced technologies.

SES Americom's AMC-12 Successfully Launched from Baikonur

ST. PETERSBURG, Russia & PRINCETON, N.J., — The Americom-12 (AMC-12) satellite of SES Americom, an SES Global company (Euronext Paris and Luxembourg stock exchanges: SESG), roared into space onboard a Russian Proton/Breeze M launch vehicle from the Baikonur Cosmodrome (Kazakhstan) on

launch vehicle from Cape Canaveral, Florida, the first giant Inmarsat-4 satellite will be positioned in geostationary orbit at 65 degrees East longitude. It will enable Inmarsat to address a wide area covering most of Europe, Africa, the Middle East and Asia, as well as the Indian Ocean.

A second satellite is planned for launch in summer 2005 to cover South America, most of North America, the Atlantic Ocean and part of the Pacific Ocean. A third satellite is also at an advanced stage of production.

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Thursday at 7:27 a.m. Baikonur time (3:27 a.m. CET; 9:27 p.m. Eastern U.S. on February 2nd).

After 9 hours and 19 minutes, the spacecraft separated from the Breeze M and was placed into geostationary target orbit (2:46 p.m. St. Petersburg time; 12:46 p.m. CET; 6:46 a.m. Eastern U.S. Feb 3rd).

SES Americom said the C-band satellite will undergo payload and performance testing at 67.5 degrees West. AMC-12, however, is being prepared for operation from the 37.5 degrees West orbital position and in April 2005 will be ready to support the transmission of digital video and data services in three regional beams: North America, South America, and Europe/Africa in April 2005.

SES Astra, SES-Americom's affiliate company, has committed to integrating 33 transponders offering services into Africa into their services portfolio as Astra 4A. Star One of Brazil has contracted to purchase 18 transponders offering services within

South America in their portfolio as Star One C-12. SES Americom will be using the AMC-12 capacity to interconnect the U.S. with Europe/Middle East/Africa and with South America, as well as to deliver services throughout South America.

"The AMC-12 spacecraft has a very important mission connecting the robust regional fleets operated by Americom, Astra and Star One," Brent Bruun, senior vice president of Enterprise Solutions, SES Americom, said. "We are looking forward to April when the spacecraft becomes operational and both ASTRA and Star One can begin to deliver high-powered C-band services into their designated markets."

XM Satellite Losses Shrink as Subscriber Base Grows to 3.2 Million

WASHINGTON,— XM Satellite Radio Holdings Inc. reported fourth-quarter losses narrowed after revenue more than doubled

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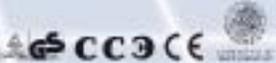


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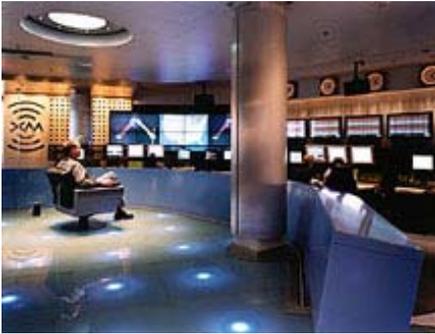
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XM's Broadcast Operations Center
(XM photo)

as subscriber base grew.

XM, the leader in the satellite radio market, said it added 1.8 million net subscribers in 2004, an increase of 137 percent over 2003, and finished the year with 3,229,124 subscribers, exceeding 2004 year-end subscriber guidance

of 3.1 million by more than 125,000 subscribers. It forecasts subscriber growth of about 71 percent this year and expects to reach cash flow break-even in 2006.

The company posted a quarterly loss of \$188.2 million, or 93 cents per share, compared with a loss of \$162.9 million, or \$1.12 a share, a year earlier. Revenue rose to \$83.1 million, from \$33.5

million, a year ago. XM's full year 2004 revenue was \$244.4 million, an increase of 166 percent over the \$91.8 million reported in 2003.

XM said its cost per gross addition, a measure of how much it spends to draw in new subscribers, was \$100 in 2004, down from \$137 in 2003.

XM president and CEO Hugh Panero said he hopes to end the year with 5.5 million subscribers.

Arianespace Declares Ariane 5 ECA Enters Commercial Service; Wins Contract to Launch Star One C2 Satellite

KOUROU, FRENCH GUIANA, — Arianespace said its increased-performance Ariane 5 ECA is now in full commercial

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service following its successful deployment of a two-satellite payload in orbit last Feb. 12.

The heavy-lift Ariane 5 ECA version has a payload lift capability to geostationary transfer orbit (GTO) of 9,600 kg., compared to 6,700-kg. for the baseline Ariane 5 Generic.

The primary payload for last Saturday's mission was the XTAR-EUR a governmental X-band telecommunications satellite. XTAR-EUR will be operated by XTAR LLC - a joint venture of Loral Space & Communications and Hisdesat, S.A. Its telecommunications relay services will be offered to government users in the United States, Spain and other friendly and allied nations. The spacecraft was produced by Space Systems/Loral and uses the company's 1300 satellite bus.



The heavy-lift Ariane 5 ECA for Flight 164 accelerates away from the Spaceport (Arianespace/CNES photo)

and recording video images using a pair of cameras. Maqsat-B was designed to remain mounted to Ariane 5 throughout the mission.

Following the successful launch, XTAR announced the satellite will enter commercial service in the second quarter of 2005 after the completion of routine in-orbit tests.

The Spanish Ministry of Defense (SMOD) is XTAR's first customer, leasing 238 MHz of X-band capacity on

An instrumentation payload called Maqsat-B was carried as well on Ariane 5, with the goal of logging parameters during the flight

XTAR-EUR until its primary satellite, SPAINSAT, enters service, at which time XTAR will provide back-up capacity to the SMOD

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on XTAR-EUR. In addition, XTAR will lease eight 72 MHz X-band transponders on SPAINSAT, to be designated XTAR-LANT, in order to provide greater flexibility and additional X-band services.

Meanwhile Arianespace announced it has signed the Star One C2 satellite launch contract for Brazilian operator Star One. The satellite will be orbited in 2007 by an Ariane 5 from the Guiana Space Center, Europe's Spaceport in Kourou, French Guiana.

Star One C2 is the eighth Brazilian satellite to be booked for launch on Ariane, following six Brasilsat satellites and Star One C1 - which is slated for launch in 2006. Star One is the largest regional satellite service operator in Latin America.

The Star One C2 satellite is being built by Alcatel Space at its Cannes and Toulouse facilities using a Spacebus 3000B3 platform. Weighing about 4,100 kg. at liftoff, it will be placed in geostationary orbit at 65 degrees West. It will be fitted with 45 C-, Ku- and X-band transponders to handle both direct TV broadcasts for South America and international and domestic long-distance telephony for Brazil and Mexico.

Eutelsat Taps ILS Proton for Hot Bird Launch Beginning 2006

MCLEAN, Va., — Eutelsat S.A. has signed a contract for the launch of a future Eutelsat satellite mission with International Launch Services (ILS).

ILS said the launch is scheduled for the first quarter of 2006 and the mission will use the powerful Proton/Breeze M launch vehicle configuration. The Proton is built by Khronichev State Research and Production Space Center of Russia, which is partnered with Lockheed Martin (NYSE: LMT) of the United States in the ILS joint venture.

According to ILS, the contract was negotiated and signed in the framework of Eutelsat's strategy of contracting with different suppliers of satellites and launch services.

This will be the eighth Eutelsat launch on an ILS

vehicle, and the company's second on an ILS Proton. Eutelsat, one of Europe's leading satellite operators, has launched six times successfully on ILS' Lockheed Martin-built Atlas rocket. Three of those missions were the inaugural flights of Atlas variants — Atlas II, Atlas III and Atlas V. **SM**

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EXECUTIVE MOVES

Peter A. Carides Named President and CEO of Tachyon

VIENNA, Va. and SAN DIEGO, — Tachyon Networks Incorporated announced the appointment of Peter A. Carides as president, chief executive officer and a member of the company’s board of directors.

The hiring of Carides is the latest and most significant step in positioning Tachyon for strategic growth, said Erik Anderson, chairman of Tachyon’s board. “Peter brings a wealth of experience with fast-growth companies and deep knowledge of the global telecommunications marketplace, particularly in the satellite and wireless sectors.”

Carides has had a distinguished career in senior leadership positions with telecommunications companies serving the private and public sector markets. Most recently, he was vice president at Equant, Inc., where he led the company’s global satellite and wireless division.

As chief operating officer with Advanced Remote Communications Solutions, Carides spearheaded strategic planning, aggressively grew revenues and achieved market expansion through multi-national partnerships.

“The global satellite communications marketplace is poised for explosive growth and I believe that Tachyon offers a broadband solution unmatched in the industry. I look forward to leading Tachyon during its next phase of growth by expanding its service footprint and penetrating new markets,” said CaridePhillip Spector, Former White House Aide.

CapRock Appoints Roberta Kowalishin as VP of IT

HOUSTON, — CapRock Communications has appointed Roberta Kowalishin as vice president of information technology (IT). Reporting to the company’s president and chief operating officer, Errol Olivier, Kowalishin will manage CapRock’s expanding IT strategy as well as oversee critical functions including customer network management and enhanced automation of internal production and service processes.

Kowalishin comes to CapRock with extensive industry experience at companies including Computer Sciences Corporation and JPMorgan, where she was responsible for designing, implementing and supporting a wide range of global technology solutions and infrastructures. Prior to appointment as vice president, Kowalishin served as CapRock’s director of information technology. Kowalishin holds a master’s degree in IT strategy from the Massachusetts Institute of Technology and a bachelor’s degree in economics from McGill University.

CapRock president and COO said Roberta has shown clear vision and leadership with regard to the management of the company’s global network and is finding new and innovative ways to streamline the processes and improve customer value. “Roberta’s insights and strategic approach to managing IT resources will be invaluable in supporting both internal and customer networks,” he said

Evan Grayer Joins DirecTV Group as VP, Broadband

EL SEGUNDO, Calif., — The DirecTV Group, Inc. announced the appointment of Evan R. Grayer as vice

president, broadband. In this new position, Grayer, who joined the DirecTV Group from Time Warner Cable, is based in New York.

Grayer will be responsible for evaluating broadband options for DirecTV and executing on the strategy going forward. He will also determine DirecTV’s long-term broadband strategy.

“Evan brings to DirecTV a vast array of experience in multichannel television, high-speed Internet, and wireless services,” said Chase Carey, president and CEO of The DirecTV Group. He said Grayer’s in-depth knowledge of the broadband market will undoubtedly serve DirecTV well as the company addresses the role broadband will play in our business going forward.

Grayer previously held business development roles at Time Warner, both for the Time Warner Cable division in Stamford, Conn. and America Online in Dulles, Va.

Phillip Spector, Former White House Aide, Joins Intelsat as General Counsel



Washington, D.C. — Intelsat announced that Phillip Spector, a well-known Washington attorney, has joined the company as its Executive Vice President and

General Counsel. Spector joins Intelsat from the international law firm of Paul, Weiss, Rifkind, Wharton & Garrison LLP, where he was the managing partner of the

Executives Moves

Washington office and the chairman of the firm's Communications & Technology Group.

Spector has a strong background in the satellite sector, having represented over his years in private practice not only Intelsat, but also other major satellite operators, including SES Global and PanAmSat. He has also been retained by large users of satellite capacity, and by major satellite manufacturers.

A few years ago, a legal publication named him "the leading satellite specialist in Washington," and he has been profiled for his "skilled legal work" in American Lawyer.

Conny Kullman, chairman of the board of Intelsat, Ltd. said Phil's wealth of knowledge of international telecommunications issues, and his extensive experience in the Washington political and regulatory arenas, makes him particularly well-suited to guide our company's legal, regulatory and government affairs activities on a global basis.

Spector graduated from Harvard University, where he received a master's degree in public policy and a law degree, magna cum laude, and where he was an editor of the Harvard Law Review.

Northrop Grumman Establishes Directed Energy Systems Unit, Names Art Stephenson Named Vice President of New Business Area

REDONDO BEACH, Calif., — Northrop Grumman Corp. said on it has established a new business area — Directed Energy Systems — to help transition high-energy laser systems from the laboratory to warfighters.



Established at the company's Space Technology sector, DES, Northrop said, positions the company to better take advantage of upcoming opportunities in directed energy applications. In 2004, the Airborne Laser (ABL) program achieved 'first light' of the Northrop-built, megawatt-class laser, and the Tactical High Energy Laser (THEL) testbed proved its versatility by repeatedly shooting down mortars and large-caliber rockets in-flight.

"Because of the recent successes in proving the technology and engineering behind high-energy lasers, we believe the time has come to put these speed-of-light defensive capabilities into the hands of our warfighters," said Alexis Livanos, president of Northrop Grumman Space Technology.

Meanwhile, Art Stephenson, a 28-year company veteran and former director of NASA's Marshall Space Flight Center, has been named vice president of the DES unit.

Stephenson, 62, is responsible for Northrop Grumman's work on chemical lasers, solid-state lasers and rocket-based engagement systems. Chemical laser programs include the ABL and the THEL testbed. Solid-state lasers include the Joint High Power Solid-State Laser and the Strategic Illuminator Laser. Rocket-based engagement systems include the Active Protection System — a radar-commanded, point-and-shoot system that can detect, track, intercept and defeat threats at a distance sufficient enough to ensure combat vehicles' survival on the battlefield.

The new business area includes affiliates Cutting Edge Optronics in St. Charles, Mo., and SYNOPTICS in Charlotte, N.C., both of which produce laser materials and components.

Gilat Names Haim Benjamini as External Director

PETAH TIKVA, Israel, — Gilat Satellite Networks Ltd. has announced that Haim Benjamini has been elected to serve as external director on the company's board of directors.

Benjamini will serve for a term of three years and until his respective successor is duly elected and qualified.

Benjamini currently serves as an advisor to Teva Pharmaceutical Industries Ltd., CEO, board and management. Since 1988 and until December 31, 2004, Benjamini served as Teva's Corporate Vice President of Human Resources.

Alexis Livanos to Lead Northrop Grumman's Space Technology Sector

LOS ANGELES, — Northrop Grumman Corp. has elected Alexis C. Livanos corporate vice president and president of the company's Space Technology sector. He succeeds Wesley G. Bush, who was recently elected Northrop Grumman's chief financial officer.

Livanos, 56, a veteran defense and space industry executive, assumes his new position effective Feb. 7, 2005. He will report to Ronald D. Sugar, Northrop Grumman's chairman, chief executive officer and president.

Executives Moves



Livanos most recently served as vice president and general manager of the Navigation and Space Sensors Division, which is part of the

company's Electronic Systems sector. In this position, he led the division's financial turn-around and established growth strategies in areas such as avionics systems and space sensors for use in the global war on terrorism.

Prior to joining Northrop Grumman in February 2003, Livanos served as executive vice president of Boeing Satellite Systems where he was responsible for technology, engineering, manufacturing, supply-chain management, and strategic relationships and ventures. Livanos previously served as deputy general manager for the former TRW Space and Electronics Group and later as executive vice president of operations for Space Systems/Loral. While at Loral, he drove the development of the next generation of high-performance, high-power satellites.

Livanos has more than 28 years of experience in the fields of advanced communications systems, technology and

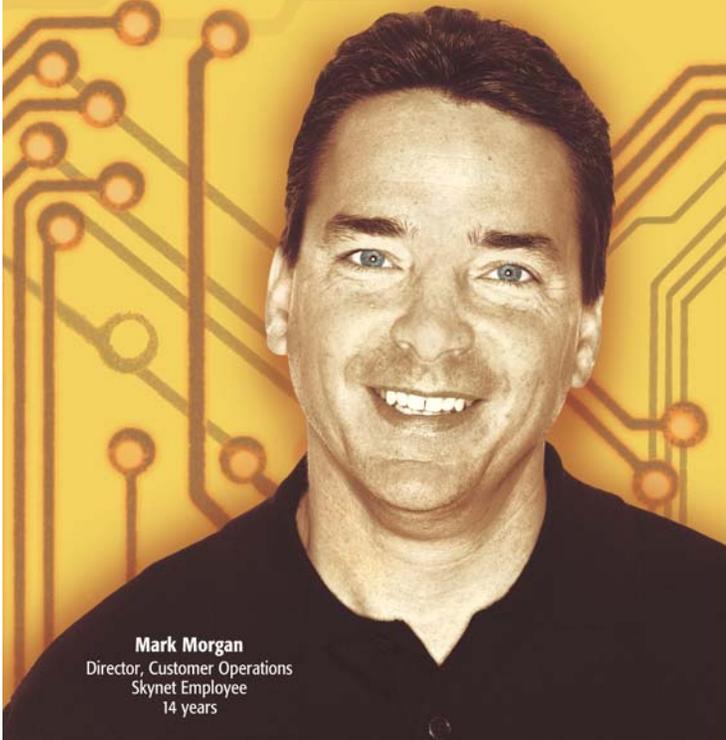
technology insertions, hardware design, and satellite manufacturing and production, and has participated in the successful launch of 41 satellites.

Livanos earned a bachelor's degree in mechanical engineering, a master's degree in engineering science, and a Ph.D. in engineering science and physics from the California Institute of Technology, where he subsequently taught applied physics for two years as a post-doctorate fellow.

SM

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Mark Morgan
Director, Customer Operations
Skynet Employee
14 years

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New Products

AirTran Airways, XM Satellite Launch New Inflight Service



Vegas, Nev.

LAS VEGAS, — AirTran Airways subsidiary of AirTran Holdings, Inc., and XM Satellite Radio, launched on AirTran Airways’ new complimentary XM Satellite Radio service on its flights at Caesar’s Palace in Las

Financial terms of the agreement between AirTran and XM Satellite were not disclosed.

From Wichita Mid-Continent Airport, AirTran operates two daily Boeing 717 flights to Atlanta and one weekly flight to Orlando, Fla. AirTran currently has three planes with XM Satellite Radio service and plans to have XM installed on 20 planes by the end of February.

XM said installation on the remainder of AirTran Airways’ fleet will continue through summer 2005.

Passengers may either bring their personal headsets or purchase headsets from the airline to use the service, officials say.

PI•TV Selects PrediWave to Launch New Interactive Satellite TV Service

FREMONT, CA, — PI•TV has selected PrediWave’s interactive broadcast platform for its satellite TV service.

PrediWave said the scalable solutions offered by the company will allow PI•TV to position itself as a pioneer in providing the most up-to-date interactive ethnic broadcasting to Asian communities throughout the continental United States. PrediWave said its solutions enable value-added interactive services that drive revenue growth and reduce churn for broadcast operators. PI•TV will leverage PrediWave’s technologies to deploy services such as digital video recording, video on request, and interactive shopping. PrediWave’s flexible architecture allows PI•TV to incrementally roll out new features and services to meet subscribers’ growing interests and demands.

Neil Nieh, chief technology officer of PI•TV, said with the new

platform and large satellite footprint, we will bring personal interactive TV to a largely untapped market not well understood by the traditional broadcast operators.

“We are pleased to have PI•TV as our first customer in North America. This contract win is a testament to our team’s hard work and relentless focus on transitioning our technology into a multi-platform solution that encompasses both the cable and satellite markets,” said Tony Qu, president and CEO of PrediWave.

PI•TV officially launched its services in January 2005, following a successful 5-month field trial using the PrediWave platform. Consumers residing anywhere within the continental United States will be able to receive PI•TV services delivered via live satellite feed.

Norsat Introduces Industry’s Smallest and Lightest Solid State Power Amplifiers



VANCOUVER, Canada, — Norsat International Inc.’s Microwave Business Unit said on Wednesday it has added a family of highly competitive solid-state power amplifiers (SSPAs) to its product line of transmitters.

This new line of SSPAs, available in 8W, 10W, 20W, 25W, and 50W, is

billed as the smallest and lightest high-powered transmitters in the marketplace.

This new line of SSPAs is exciting because broadband data transmission is on the rise and the demand for higher-powered SSPAs is poised to continue to grow, explains Dr. Amiee Chan, vice-president, operations. “Miniaturization and weight reduction are growing concerns of earth station and VSAT providers and the gains made in bringing the lightest solid state power amplifier to market cannot be underscored enough.

The technology is a culmination of 10 years of research and development,” added Chan. Norsat said the new SSPA family has the lowest DC power consumption in use by SSPAs in the marketplace. “An increasing number of our customers are

NEW PRODUCTS

employing faster data rates and broadband applications are becoming ubiquitous. This line of high-powered SSPAs is a key enabler of such broadband applications,” said Cameron Hunter, president and CEO, describing the significance of the addition to the SSPA product family.

Spectrum Signal Processing Launches Integrated Satellite Communications Rapid-Prototyping Platform



BURNABY, British Columbia, — Spectrum Signal Processing Inc. announced the launch of flexComm SDR-2000

SRDP, a satellite communications (SATCOM) rapid-prototyping and development platform.

This fully integrated “IF to Ethernet” commercial off-the-shelf (COTS) software defined radio platform is designed for the rapid development and deployment of satellite ground stations supporting bi-directional communications with multiple remote terminals.

This is the second product in Spectrum’s family of rapid-prototyping and development platforms, which follows the SDR-3000 MRDP, a military communications (MILCOM) platform launched in November 2004.

The SDR-2000 SRDP is a PCI/PCI-X-based platform incorporated on a 2U Dual Intel Xeon server supporting Red Hat Enterprise Linux ES. The system is designed to support the multiple simultaneous carriers inherent in the frequency allocation schemes typical in many single channel per carrier (SCPC) and multi-frequency time division multiple access (MF-TDMA)-based satellite networks. Spectrum Signal said the SDR-2000 SRDP is immediately deployable in many SATCOM settings and

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New Low Cost Satellite Broadband System to be Launch in the Market

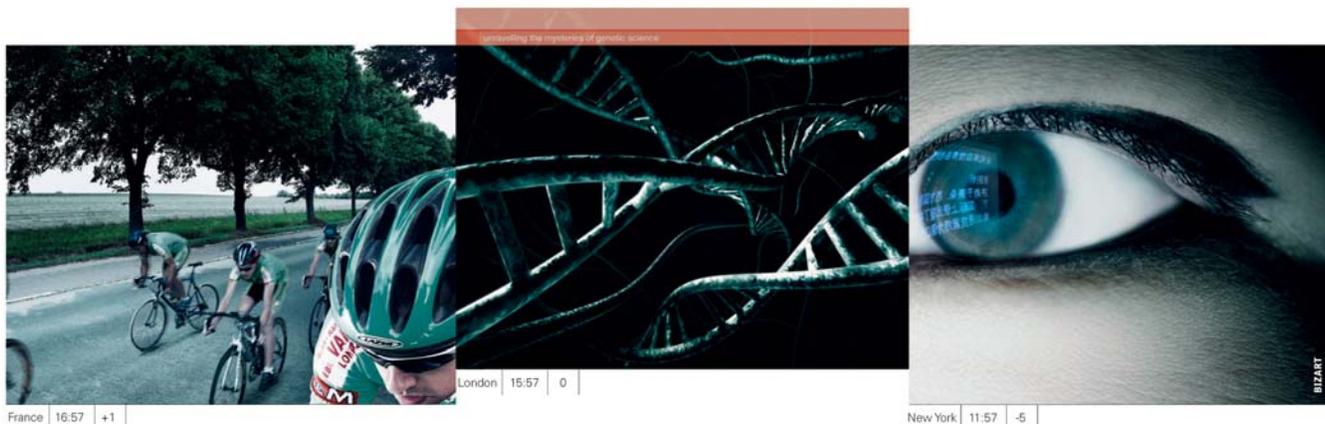
During the PTC (Pacific Telecom Conference) last January Astro Research Holding launched a new project to use a low-cost satellite broadband system to serve the West Coast of the United States and the Pacific Islands.

Astro Research Holdings of Los Angeles, CA is looking for investing partners and is already in conversation with Space System Loral for their project that is named ADASS (Asia-Pacific Direct Access Satellite System). The venture is planning to use small satellite developed by a Japanese Scientist with an estimated cost of US\$ 150 million.

Astro Reseach Corp. Established in 1996 as an engineering services company in Japan created Astro Research Holding in 2004 to pursue the ADASS Project in the USA. The ADASS business plan is to bring a subscriber terminal hardware to a cost down to the US\$ 300.00 to 400.00 base in the information of Hideaki Magome VP of Astro Research Holding. They are talking with ViaSat to reach this price but still in working development. Hideaki mentioned that the satellite will use flexible Spot Beams to target populated areas on the U.S. West Coast and the intention is to have a cost competitive solution with DSL and cable, He said.

Astro Reseach Holding will file with FCC to launch its ADSS Pacific Operation into the 139 degrees west longitude orbital slot in 2007. The main gateway station will be located in Los Angeles Area. If you need additional information about investment or technology partner you can contact Mr. Bernardo Schneiderman from Telematics Business Consultants at bernardo@tbc-telematics.com or 1-949-552-6871. **SM**

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LOW COST SOLUTION TO MAKE CALLS VIA INTERNET USING VSAT



The ViperNetworks VPhone is the low cost USB IP Communications device which combines VoIP communications together with USB phone." This USB phone will provide a good value added solution for Satellite Services Providers and Satellite Carriers in the Market Place that is looking to provide

to their clients access to the PSTN with a device in the range of less than US\$ 50.00.

TBC- Telematics Business Consultants jointly with Viper Networks is launching this quarter a new VOIP low cost solution for Satellite Services Provider and Satellite Carriers. This USB PHONE VPHONE would give more options for clients that need to call the PSTN from IP via Satellite terminals anywhere in the world to any fix or cell phone worldwide with a pre-paid rate starting with one

penny per minute. The VPHONE phone as you can see in the picture is similar to a cell phone and has capacity to be activated in 2 minutes in Satellite Broadband Terminal or non-Satellite Environment.

Minimum System Requirements: PC Windows 98 or XP

Technical Features

- Make inexpensive VoIP phone calls at any location with access over Vipers Global network.
- Great for Branch offices as well as SoHo
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- Use only 8 Kbps or equivalent of 12 Kbps in space segment base in test of VSAT IP Platform

The services is current available worldwide and if you need any further information contact TBC- Telematics Business consultants via email bernardo@tbc-telematics.com or via phone + 1-949-552-6871.

“SPACE SYSTEMS/LORAL BOUNCES BACK IN 2004”

-SPACE NEWS
Peter B. De Selding, Paris, January 10, 2005

Manufacturer	Contracts	Satellite	Operator
Space Systems/Loral	5	DirectV 8 DirectV 9S Galaxy 16 EchoStar 11 Intelsat IA-9	DirectV Group DirectV Group PanAmSat Corp. EchoStar Communications Corp. Intelsat Ltd.
Alcatel Space	2	ChinaSat 9 Galaxy 17	China Satellite Communication Corp. PanAmSat Corp.
Boeing Satellite Systems	3	DirectV 10 DirectV 11 DirectV 12	DirectV Group DirectV Group DirectV Group
Lockheed Martin	1	JCSat 10	JSAT Corp.
EADS Astrium	1	Anik F3	Telesat Canada

Space Systems/Loral is proud to have secured 42 percent of all firm orders for commercial communications satellites in 2004.

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COVER STORY

Satellite Radio: Great Product What About the Business Model?

by Howard Greenfield

“I’m a fan of the technology and the subscription model. There’s a bright future for them, but it may be a long time before that future manifests itself.”

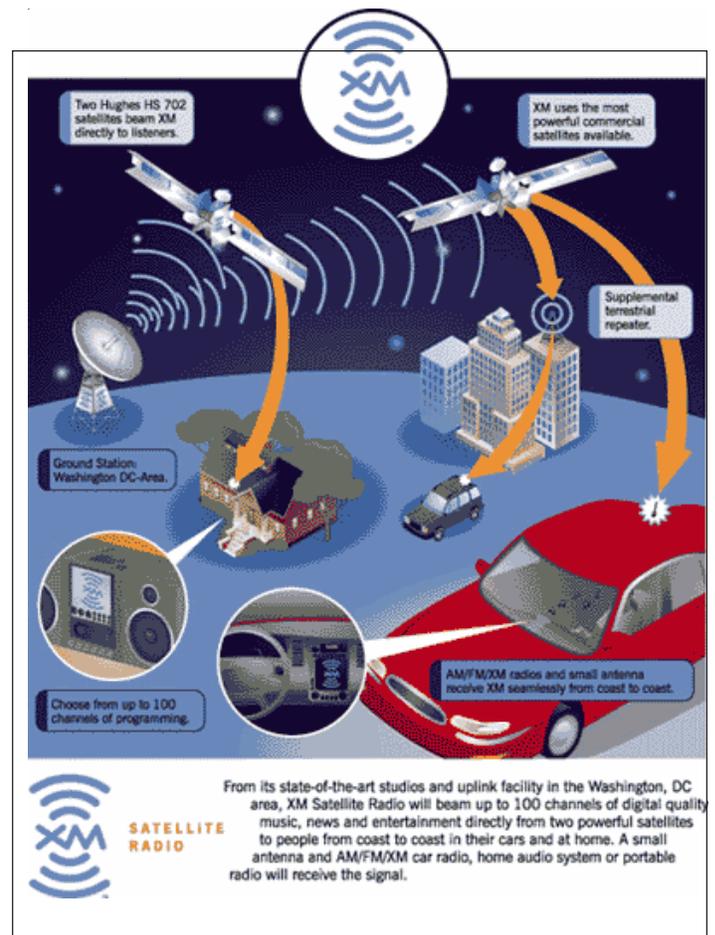
—Peter S. Fader, Wharton School

Growth and Speculation

Is satellite radio poised to overtake traditional broadcast business? Or will it falter from growth it can’t sustain and competition it can’t forsee? 2004 subscriber figures are inconclusive but encouraging. Industry leaders Sirius and XM are growing but projected profitability is dependant on the steady ramp of a new, paying audience. Though there has been speculation the two might merge, perhaps bypassing growth speed bumps, company executives deny the rumors. “I have no idea where any of this came from” responded XM CEO Mel Karmazin recently.

Currently XM has over 3.2 million subscribers (up 1.8 million subscribers from January, 2004), and Sirius exceeded 1 million subscribers. However, some say the growth curve to success is a dream. Even though neither is yet profitable, together they have a staggering multi-billion dollar valuation. Many analysts, believing shares are too expensive, question the nature of the financial picture—even using the “b” word (bubble). Others see a trade-off in such kick-start efforts as subscriber and equipment discounting: “Yes, it is a problem, because whenever you take funds out of the cycle, it affects profitability, at least in the short term. On the other hand, the Holy Grail for both Sirius and XM these days is gaining new subscribers; so many sacrifices will be made in order to achieve that long term goal. It’s pretty basic.” says The Carmel Group’s Jimmy Schaeffler.

“It’s a gamble based on market potential” acknowledges Sirius’ Jim Collins who adds “the service has a high pleasure quotient and our churn rates are low with crystal clear signal programmed by creative staff—it’s living, breathing and it’s infectious.” He also points to motor vehicle potential uptake as another metric. Sirius announced this year that Ford and Lincoln Mercury will begin offering SIRIUS as a factory installed option this summer in 21 vehicle lines and believe they will generate up



to one million SIRIUS subscribers over the 2006 and 2007 model year periods. “It’s a huge market, and even with a fraction we’re [Sirius and XM] both going to make it”.

An Infectious Service

You can’t knock Satellite Radio service: 130 channels of clear programming—often commercial-free. Customers gush about the quantity and quality: “unbelievable sound quality and selection” submitting “it now makes me want to spend more time in traffic and even take the long way home—it’s that good.”

COVER STORY

While most terrestrial signals drop out after 30 or 40 miles, satellite radio is broadcast from over 20,000 miles above the earth so radio reception is uniform across thousands of miles. Like cable's effect on television, Satellite Radio is offering richer choices of content.

The signs of growth follow huge industry investment to create such an "infectious" service in satellite infrastructure. Other recent developments are helping build the industry:

Shock Jock: Howard Stern will move to Sirius in January 2006 (and will receive a salary of \$1M / year for the next five years)

Car deals: Daimler-Chrysler and General Motors have each invested over \$100M respectively in SIRIUS and XM. Honda will use XM radios in their cars and late last year, Toyota also said it would be providing XM capabilities to its vehicles—factory installed by 2006.

Sports!: XM has announced an 11-year, \$650 million deal with Major League Baseball, indicating they could broadcast games of every Major League Baseball (MLB) team from the 2005 season. On February 15th, XM also unveiled a 24-hour MLB-only station.

Other attractions are new digital devices with iPod and TiVo-like functionality, MP3/CD compatibility, and real-time traffic service. At the CES (Consumer Electronics Show) in January,



The new Delphi handheld Satellite Radio for XM

Sirius introduced the Star Mate, a transportable radio unit nearly the size of a deck of cards. Only six ounces, it accesses 120 channels for plug and play in home, vehicle or boat. The Delphi XM MyFi™ is also a great persuader. With re-chargeable battery, it can store up to five hours of audio, and can wirelessly transmit to any FM radio speaker system, car, home or portable.

Because the industry is currently technology agnostic, many additional combinations of features and platforms are bound to materialize. The direction may be unpredictable, but commercial potential and pace of consumer electronics assures we'll be seeing many new form factors.

Other industry growth factors include:

Replacements: As ABI Research reports, millions of radios will need to be replaced (incentive for hardware and component industry sector)

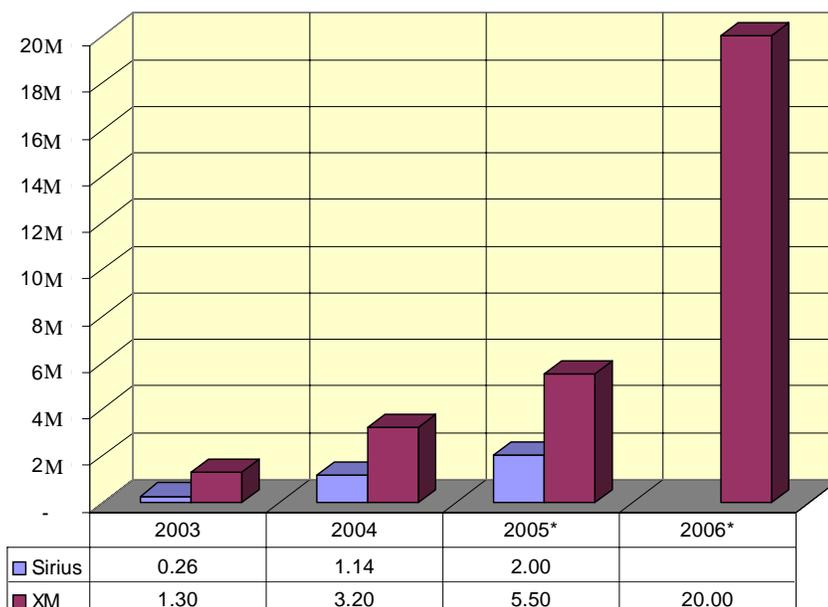
'Cheaper, Better': Satellite radio technology is more cost effective due to the economics of falling electronics costs and better use of channels – more spectrum, and more services.

The Business Model

With these factors in mind, which direction is the industry headed? Valuations and upside are questioned by some, stocks called over-heated, but there is no crystal ball. As Mark Glaser's Glaser Online offers: "It's a ripe moment for radio. Several trends are converging: digital audio production tools are cheap and accessible; new distribution paths like streaming, satellite radio, digital broadcast radio, wireless and 'podcasting' are emerging" (Jake Shapiro, executive director of PRX online content exchange).

So, over-heated or not, sustained growth, widening content, service features, and strategic

SATELLITE RADIO SUBSCRIBERS 2003 - 2006



* Projected Source: XM and Sirius.

COVER STORY

deals make the future appear to be sound. As XM's Chance Patterson puts it, the only stumbling block is "awareness - once people become familiar with what we offer then there is a high likelihood that they will become subscribers."

And Sirius' Chairman Joe Clayton opines: "awareness has



Sirius' Chairman Joe Clayton

grown tremendously this past year. This is a subscription driven business, so subscriber numbers are

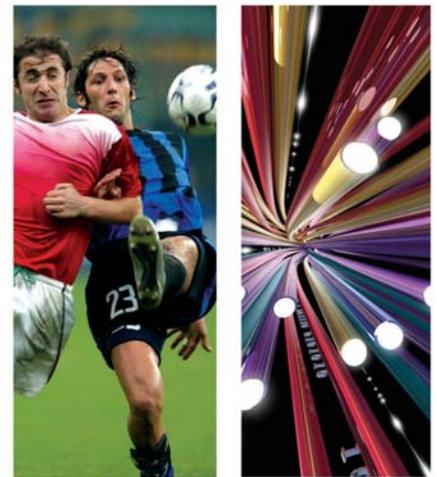
the key to success in this industry. With more auto makers installing satellite radios, and growing popularity of the products in the retail market, we believe that the category will continue to experience strong growth."

For now, even industry observers don't dispute the momentum. The Carmel Group's Jimmy Schaeffler proclaimed earlier on that "Satellite Radio will succeed. Period." He sums it up well: "the business model is wide open and receptive to all kinds of innovation. They have to be: this is fresh ground, there's no model for this stuff. Exciting, risky—but tons of reasons why it will make it (even though looking at its aggregate \$8B valuation is nuts). Bottom line is they're going to prevail. I don't have any doubt about it at all" **SM**

Howard Greenfield is a freelance writer who has held leadership roles in top Fortune 1000, Silicon Valley, and European companies including Sun Microsystems, Informix Software, Apple Computer, and British Telecom. He is principal of Go Associates, a leading consultancy that develops and implements high-tech product marketing and business development strategies. Howard also currently serves on the board of BlueVoice, a nonprofit marine life preservation organization. He can be reached at howard@go-associates.com.



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FEATURE

‘Advantage DARS’ – and Sirius in particular “100 million US subs” possible, says Clayton

by Chris Forrester

The good news flow for US satellite radio seems unstoppable. Despite on Feb 10 announcing that its net loss had widened to \$190m during the Christmas quarter (against \$170m a year ago), XM’s buoyancy is unlimited. It’s the same at Sirius, and such is the positive news that in January there were rumours that News Corp might enter the satellite radio market. There are also reports that with their US sales going so well, that both XM Satellite Radio and rival Sirius are looking at entering the European and possibly Japanese markets. Additionally, SES Global is reportedly talking about a European satellite radio venture with Alcatel Space – itself keen to find a buyer for the WorldSpace ground spare craft sitting idle in its Toulouse facility.

Both XM Satellite Radio and rival Sirius achieved excellent pre-Christmas subs numbers (XM reported adding 50,000 subs on Christmas Day alone, no doubt with many gifts installed and activated), and even some recovery on the share prices of both outfits. DARS satellite radio has had a spectacular month or two, initially with both XM Satellite and Sirius finding their stock prices going through the roof (and falling back a tad). Sirius was helped by adding Toyota to its motor vehicle distribution list, another step in Sirius’ drive to level the playing field in its fight with rival DARS player – and first to market - XM Satellite Radio. Toyota says it is now adding Sirius kit as dealer installed (and after market) installations. Toyota has been installing XM units up until now, and that relationship will continue on factory-fitted radios beginning in 2006. Toyota (including Lexus) has a 10.4% share of the US market. XM was helped by its announcement last week that it had signed up its millionth General Motors

“I believe that satellite radio hardware sales could be a billion-dollar industry by 2006,”
XM Satellite’s CEO Hugh Panero

subscriber. Sirius was itself further helped by announcing its snazzy ‘Streamer GT’ hand-held unit.

The rising stock prices for both Sirius and XM also helped propel both outfits before Christmas into the “NASDAQ 100”. XM also announced that National Car Rental and Alamo were now supplying vehicles with satellite radio on certain 2005 models. Then, on Dec 15 came news that the FCC would leave satellite radio alone and outside of its usual terrestrial rules and regulations on indecency, and in effect permitting Howard Stern to say what he liked on his upcoming [satellite] frequencies.

Both players used the important 2005 Consumer Electronics Show in Las Vegas to outline a bold agenda for market expansion, with each introducing new products and programming. XM grew by 1.8 m subs in 2004, to reach 3.2m by the end of last year, a higher number and speedier achievement than market expectations. CEO Hugh Panero said he anticipates this year’s growth to be even greater. “We expect XM will end 2005 with 5.5m subscribers, furthering our position as the big dog in satellite radio,” he said, an obvious dig at competitor Sirius.

But upstart Sirius has also racked up some impressive numbers, with a 300% growth rate in 2004, and pulled the curtain back on a variety of new receiver systems in expectation of doubling its current subscriber figure of 1.1m this year. Sirius expects to be helped by ‘shock jock’ Howard Stern’s programming debut in 2006 and Ford’s recent announcement to offer Sirius as a factory installed option on more than 21 models lines. Ford’s goal is to deliver to Sirius one million new subscribers in the next two years. “We are growing faster than where the industry is,”



FEATURE

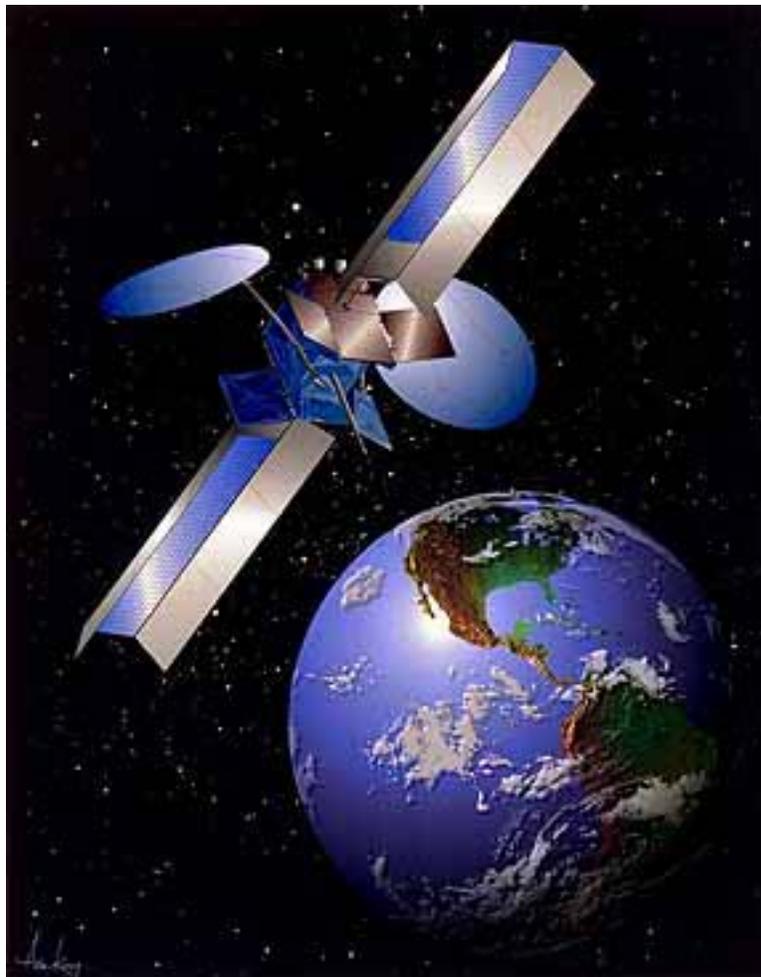
said Sirius CEO Mel Karmazin. “We believe we will be even bigger than most analysts and investors think this industry is going.”

But winning the Ford and – at least – a slice of Toyota’s business is another step forward for Sirius, long the underdog in the USA’s twin thrust for satellite radio subscribers. The position is best summed up by reports on the DARS sector from two investment banks within the past few weeks. One, on Sirius (“The Future is History”) from Bear Stearns, and senior analyst Bob Peck who plainly states that satellite radio is going to be far more meaningful than just fulfilling an enthusiast’s niche, and is well on its

“While we remain bullish on company fundamentals, we believe the recent surge in the stock has taken Sirius to levels which are difficult to justify using any reasonable valuation framework,”

*said Niraj Gupta
Dec 8, from Smith Barney. He cut his rating to “sell” from “hold”.*

At the CES show in Las Vegas, Sirius said it will be providing television streams in Windows Media format as part of its offering in 2006. The company has mentioned the possibility of streaming video before, however the pieces are now in place and the company is expected to begin television broadcasts including children’s programming in 2006. No word yet on whether Howard Stern’s show will be telecast, although chances are it could be.



way to becoming ubiquitous.

Peck suggested that perhaps the market kettle had been boiling a little too vigorously at the end of last year in terms of Sirius’ share price, given that it was trading at a premium to XM on all three metrics (market capitalisation, enterprise value, and EV/

long-term subscriptions). But with that caution in mind, he also suggests that investors need only look at the progress over the past few years of satellite pay-TV stocks to get a flavour of the long-term potential for Sirius (and XM). He suggests, for example, that Charlie Ergen’s DISH system, like Sirius long the underdog compared to its DBS rival DirecTV, is worth a closer study in terms of its own early stock market performance. Echostar, when it hit 2m subscribers, at the same time achieved a major inflection point with investors. On the same basis, Peck says Sirius could have an enterprise value of \$12.5bn by the end of 2005, and implying a value of some \$7.50 a share. Since that note Sirius hit \$9, and Peck urged investor caution, but either way the price is not at all bad for a company that was teetering on the very edge of survival barely 24 months ago (and within the past year has traded below \$2).

Bear Stearns’ view is that Sirius’ recent news flow (in particular the Howard Stern signing, then winning the radio rights to Major League Baseball, and recruiting Viacom’s former boss Mel Karmazin to run the outfit) wholly confirms their guidance that by far the best way to describe Sirius is akin to Pepsi in its position to Coke, and not VHS vs BetaMax. It

can be a win-win for both brands. In fact, Sirius’ new radio models (and also XMs spectacular “walkman” device) will help take the whole sector into the mass market. “It remains clear to us that the reason pay TV (cable or satellite) is so successful (90-95% penetration of US TV households), is because of its value proposition: more choice (channels) than the terrestrial offering and no commercials for an appropriate fee. Satellite radio is no

FEATURE

Losses to date

XM reported a loss of \$304m on revenue of \$161m through the first three quarters of 2004, after reporting a loss of \$319m on revenue of \$92m in 2003. Sirius reported a loss of \$450m on revenue of \$41.6m through the first three quarters of 2004, after reporting a loss of \$226m on revenue of \$12.9m in 2003.

different in our minds,” says Peck’s report. “Just as some investors thought paying for TV back in the 1970s would never work, we’ve had some naysayers iterate the same thoughts on pay radio. However, we think that the legitimacy that recent partnerships have brought to satellite radio has many pessimists rethinking their opinions and ultimately trying to gauge where the satellite radio stocks can go,” adds Peck.

Peck admits that satellite radio has one major difference with DBS/DTH, and it is in radio’s lower ARPU levels. Consequently, Bear Stearns looks instead at cash flows within the radio sector to get a better feel for overall profitability. Peck says that typically DBS subscribers churn at a rate of around 1.7% a month (in the US), and that gives a subscriber ‘life time’ of some 4.75 years. Next, he looks at Echostar’s average ARPU of about \$58 a month, or \$696 a year. Then Peck includes into the equation Echostar’s pre-marketing cash-flow margins of about 38%, its maintenance capital-expenditure (\$18 per sub), Subscriber Acquisition Costs (SAC) of some \$600, press the ‘compute’ button, and Peck says the end result is an internal rate of return of about 28%, which proves, says Peck, that “DBS is clearly a good business to be in” with cashflows of \$246 in a full year (for the

typical first 4 years of life, and \$180 for the ‘final’ year of the average).

This same model is then applied to Sirius, with much the same churn rate, meaning a similar subscriber lifetime, but \$11 a month in typical ARPU (\$132 a year), and an assumption that Sirius “conservatively reaches a run rate pre-marketing cash flow margin of about 50% to derive an annual pre-marketing cash flow of about \$66 per year,” says Peck. Finally, he assumes a much lower maintenance capex, of \$5 a year, generating an annual cash flow of \$61 per sub. Add in SAC of \$140 (and predicted to be lower from 2005 onwards) and applying the same formula and Peck suggests Sirius’ internal rate of return is a very



nice 32% (again ignoring taxes) or \$61 a year for the first 4 years, and \$45 for the average final year.

DARS ITEMS OF NOTE

- 1) MCV is 90-95% penetrated - DARS only 2.5% (4.5M of 200M cars)
- 2) MCV target market 100M TV households – DARS 300M (cars + households)
- 3) DBS is dwarfed by cable competition – DARS has no mobile pay competition
- 4) DBS pays ~40% of revenues for its content – DARS pays ~7-10%
- 5) DBS is not installed automatically into homes – DARS is in cars
- 6) MCV is proven (the mass market will pay) – DARS is still nascent
- 7) DBS will spend ~\$2B in capex to handle HDTV – not needed by DARS
- 8) DBS had limited exclusive content (only NFL) – DARS has Stern, MLB, NBA

Source: Bear, Stearns & Co., Inc.

ADVANTAGE?

- DARS

All this is very useful, suggests Peck, but there are positives and negatives that must also be added to the DARS mix. First up is that Echostar and DirecTV (and not to ignore struggling VOOOM) are fighting

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That is already 90-95% on and is just starting 5m of the USA's 200m Advantage DARS" market, which is about the already mentioned comes. Quite definitely, it remains dwarfed by mobile pay competitors for its revenue for use, DBS is never ARS is now frequently channel TV is a proven ascent "although with faces a huge bill to digital high fidelity. (compared to cable to show it can deliver and Stern model.

Peck is definitely in the DARS court, which simply has "more upside" than DBS, and this is what persuaded Peck to raise his initial target price for Sirius from \$5 to \$7.50 although his note was quickly overtaken by events. Peck added that the share price comparison with

with the market foolishness of those days, but nevertheless Peck seemed comfortable that by the end of 2005 Sirius could be trading at the \$7.50 mark. Again, events have shown that price to be an under-estimate.

Indeed, there's still more potential upside. So far Peck has kept strictly to the financial numbers. But he then suggests that even if the much-touted Howard Stern signing doesn't result in 1.2m incremental subscribers (needed to make the deal financially worthwhile), Sirius could even permit Stern to be something of a marginal loss-leader while at the same time helping support Sirius' other programming, as well as being an evangelist for the promotion of DARS radio in general. But, says Peck, signing Mel Karmazin (the "Mel" factor) takes satellite radio to another dimension, adding: "His appointment as CEO clearly heightens the credibility of the growing satellite radio industry... Karmazin was a good strategic move and increases Sirius' chances of success on many levels... As the former CEO of Infinity, Westwood One and CBS, Mr. Karmazin brings to Sirius ~ 35 years of radio operating programming and sales experience. As COO of Viacom, Mr. Karmazin also gained extensive knowledge of broadcast and cable TV and in negotiating rights fees, including the NFL. His radio experience and ability to attract, negotiate and sign major programming rights is a major advantage for Sirius," says Peck.

The DARS battleground

	Sirius	XM	Total
Share Price	\$6.51	\$37.61	
Fully Diluted Shares Out	1,720.1	306.1	
Market Cap	\$11,198	\$11,513	
+ Debt	58.9	777.0	
- Cash	(843.2)	(727.5)	
- Cash from Options/Warrants	(765.8)	(162.6)	
= Enterprise Value	\$9,647.8	\$11,400.0	\$21,047.9
% of DARS EV	46%	54%	

Source: BSC estimates

Peck's right. The Karmazin signing takes Sirius up at least a couple of notches. He knows just about everyone in US network radio. He is a skilled media operator and the market is expecting him to be a major catalyst in content and personality signings. Clayton stays on board, at least for the time being, although some voices suggest he'll then make a move to another start-up.

Echostar suggests that Sirius, provided it hits a few DISH-like milestones, is a perfectly sensible comparison and should generate a similar upward growth curve in terms of market price. "Looking back at the major milestones Echostar has achieved, we think the most significant [result] would be subscribers. Therefore, we have looked back to see what enterprise value the market assigned to Echostar when it reached the 2M subscriber milestone. We project Sirius reaching this milestone at the end of next year, and think it's reasonable (based on the analysis above) that Sirius could achieve a similar valuation," says Peck. But he also modifies Sirius' Enterprise Value somewhat because Echostar hit its magic numbers back in the heady days of 1999

Promised new services from Sirius include direct-to-unit stock prices, plus "sports scores, and recording capabilities - and, it'll even lock and unlock your car doors, said Joe Clayton, chairman of the board. Clayton spoke to investors at the UBS Warburg Media Week Conference at the Grand Hyatt New York before Christmas. "We're 'tech-agnostic' - we provide service over the Internet and we want to look into iPod technology," Clayton said, commenting on the growth path the company has charted. "As an entertainment company, we want to be able to provide our service over as many platforms as possible. And we want to provide as many different services as possible, such as rear-seat video and even security for your car."

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“Currently, our business comes from 25% automotive, 75% retail, and within the near future, those figures will be inverted,” Clayton said. “Among the other services we plan to offer is navigational ability for the car. One day soon, this will be standard equipment in every vehicle. And it is not inconceivable that by 2015, we’ll have 100 million subscribers via automakers.”

As for future sales, Bear Stearns suggests that taking the longer view to 2010 it will be DirecTV that will still be ahead on subs numbers at 19.736m, with Sirius totalling 15.320m, and an Enterprise Value per sub of \$578 for XM and \$606 for Sirius. Their combined EV in 2010 should be a tad over \$20bn, which – says Peck – is still only about the same level as Echostar was when it passed the 2m subs milestone. He gives XM a target valuation of \$45, of which more in a moment.

Bear Stearns has also looked in depth at XM again, responding to the recent movement in XM’s stock price, and



the publicity that both bring to the table. If there is one major takeaway for investors by their signings, it is that satellite radio is going to be a viable medium with a potential mass-market appeal for a long time. We also think the signing of Major League Baseball for XM further corroborates this theme and gives a nice counter punch to Sirius’ exclusive NFL programming,” explains Peck.

DARS – The subs numbers ('000 year-end)

	2003A	2004A	2005	2006	2007	2008	2009	2010	2011
XM	1,360	3,2	5,516	8,291	11,291	14,166	16,966	19,336	22,401
Sirius	0,261	1,1	2,020	4,720	7,220	10,020	12,620	15,320	15,820

Data: Bear Stearns

asking whether XM’s price had also moved too far, too fast? Using the same methodology applied to Sirius, Peck comes to the conclusion that the end of 2005 will represent XM’s probable inflection point with the platform likely to hit a key 5.5m subs number and a corresponding Enterprise Value of \$15bn by year end 2005, or \$45 a share. Peck’s not unreasonable view is that the overall newsflow within the DARS sector is ‘raising all boats’ and at the same time reducing the risk in the business model.

He says the overall share price movement (in the 6 weeks up until the end of November) put XM up some 30% and Sirius up a staggering 76%, all of which helps Peck with his overall vision for the sector. Key to his thinking is the possibility that satellite radio, as we have mentioned before, will be a ubiquitous addition to the market. He suggests that as technological advances make improvements in chip functionality and power demands satellite radio could even find its way onto cell-phones, PDAs and MP3 players. Peck stresses that the signing to Sirius of Howard Stern and Mel Karmazan is good for the whole sector. “Obviously, Sirius becomes a more formidable competitor with both on board, but we think all of satellite radio will benefit from

DARS satellite radio is also an informal hit North of the Border in Canada. Like the “gray” market in exported DirecTV and Echostar boxes, there are a growing number of XM and Sirius systems in use in Canada, and the Canadian authorities don’t much care for it. XM and Sirius both have subsidiaries operating in Canada pitching to local regulators for permission to legitimately sell their services. They are offering a slice of their bandwidth to all-Canadian channels, and these channels would also be available in the continental USA.

Japan is also looking at a DARS system, but that’s about it. Despite the rumours, Europe’s efforts are limited to one failed company (Global Radio) and an embryonic plan to use the ground-spare AmeriStar craft initially built Worldspace. There were a flurry of announcements back in 2002, but the Worldspace/Alcatel j-v has since gone quiet since.

There are opinions in Europe that suggest Europe’s multitude of languages, and higher, tighter GEO angles, would make DARS over Europe a much tougher play. While the USA

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lies mostly between 49 deg North (its border with Canada) and 30 deg N, the most densely populated parts of Europe are between 45 deg North and 55 deg N. Only Spain, Portugal and Italy (and former Yugoslavia and Turkey) are below the 45 deg N parallel.

There are other problems: North America has just a handful of automotive giants. Europe has dozens of car builders. North America's commercial radio options are limited. Europe has hundreds of publicly-funded radio stations (albeit operating at national levels) as well as commercial operators. America is a market that's highly dependent on the car, while Europeans tend to use public transport at much higher levels, for short as well as longer journeys.

Those challenges remain. However, two years ago Global Radio, the Luxembourg-based embryonic operator of a proposed pan-European DARS system went bust having failed to achieve second-round funding. Today's investment opportunities might be significantly better, especially with the XM and Sirius

experience to hand. It is quite likely that those old business plans are being dusted off for a second look. **SM**



London-based Chris Forrester, a well-known broadcasting journalist is the Editor for Europe, Middle East and Africa for SATMAGAZINE. He reports on all aspects of the industry with special emphasis on content, the business of television and emerging technologies. He has a unique knowledge of the Middle East broadcasting scene, having interviewed at length the operational heads of each of the main channels and pay-TV platforms. He can be reached at chrisforrester@compuserve.com




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VIEWPOINT

Satellite Radio and the *Riddle of the Sphinx*

by Bruce Elbert
President, Application Technology Strategy, Inc.

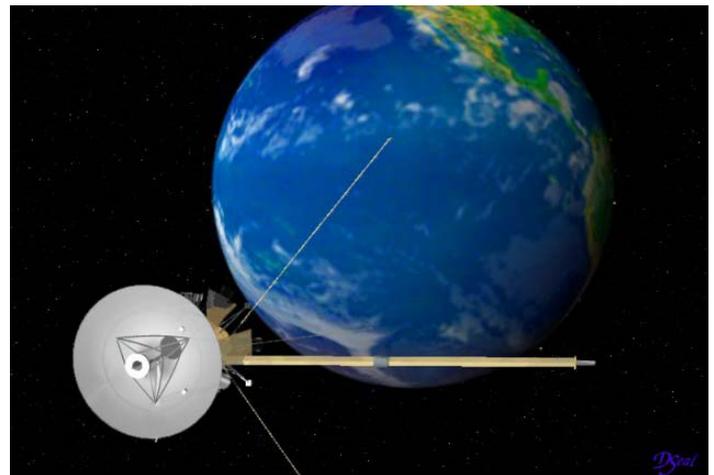
XM Satellite Radio just announced that it has exceeded 3 million paying subscribers. Will XM then be crowned X-Rex? What about up-and-comer Sirius Satellite Radio, or others outside the US like Worldspace and MBC of Japan and Korea? From my perspective, Satellite Digital Radio Service (S-DARS) is a winner and I am definitely one of the most satisfied customers. But the big players in S-DARS are faced with a modern Riddle of the Sphinx. That's because there remain questions about the future growth and financial success of S-DARS.

S-DARS Conquers the Winds of Change

Many of us were skeptical that enough radio listeners would actually pay money for what is otherwise free-to-air. Proponents argued that subscription S-DARS would succeed like cable TV did before it – by offering more programming options from a high-quality delivery mechanism. S-DARS has shown itself to be the DBS for your car. XM Satellite Radio was first on the air in the continental US, and Sirius Satellite Radio is growing above one million subscribers. Each offer in excess of 100 different audio channels, combining ad-free music in dozens of formats as well as nationally-known talk radio and 24 hour news channels from cable. Local traffic and weather were added recently and syndicated shows like Howard Stern and Dr. Laura only “appear” on S-DARS. In Japan and Korea, MBC will combine audio with video to provide real-time TV to mobile audiences.

March 2005

An accompanying SatMagazine article by Howard Greenfield outlines the industry structure in the US and the current status of the business. The architecture and technical characteristics of current systems are detailed in the Satellite Communication Applications Handbook, second edition (Artech House, 2004).



From a grass roots perspective, I recently had a very interesting conversation about satellite radio with C. Calloway (VC) Brooks, grandson of the famous jazz composer and orchestra leader Cab Calloway; VC is also a jazz musician and continues to direct the Cab Calloway Orchestra. According to VC, “S-DARS gives the audience a lot more diversity, a lot more clarity, and a lot more control. What they could do[to grow] is add more options and improve the continuity of signal as you pass through tunnels, underpasses, in parking structures (where you may have to sit waiting for someone to show up). Of course, you always have the normal radio for backup.”

It's interesting to note that S-DARS is not available in Europe, other than the few channels offered on Worldspace's Afristar satellite. I was discussing this

with a British journalist and the one point that we agreed on was that Europe, with many individual countries and associated individual languages, presents a large challenge to a fledgling S-DARS operator. Unlike SES Astra, who operates eight satellites in one orbit position with more than 100 transponders that deliver over 1000 television channels, an S-DARS system may not be able to achieve a similar level of expansion. This is mainly due to the limited spectrum allocated in the most appropriate L and S bands (discussed below in the US context).

Concentrating on the developed US market, operators XM and Sirius face some really serious challenges in coming years. These fall into two categories – (1) those that are tied to the fact that geostationary or near-geostationary satellites are used to deliver signals via a line-of-sight path to compact antennas and receivers, and (2) those that relate to the fact that the service is composed of multiple

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entertainment channels that must appeal across a broad (at least in aggregate) paying audience. These are discussed in the following paragraphs.

Gaining more spectrum and/or finding more orbit slots

The biggest challenge facing S-DARS, in my view, is that of obtaining adequate orbit-spectrum resources for growth necessary to remain competitive and increase revenues. The L and S band spectrum allocations by the ITU provided a nice opportunity for innovators, particularly Worldspace. However, now that we have a real business, the current situation may not be workable in the long term unless action is taken. Getting more spectrum will not be particularly easy – or as cheap as what XM and Sirius originally paid in the first auction (e.g., under \$80 million each). Unlike the standard two-degree spacing at C and Ku that allows more than 200 orbit slots to co-exist worldwide, S-DARS satellites must be spaced much further apart. With current vehicular antennas, which are omnidirectional, it is not possible to have two current-design satellites visible in the sky that are transmitting on the same frequency. Techniques such as multiple beams from the satellite and on the vehicle, and potentially using advanced spread spectrum technology, would multiply his bandwidth. But the current operating S-DARS receivers would be incompatible and therefore subject to unacceptable interference.

Acquiring new programming formats

You might think that every kind of audio programming has been thought of. Back in the 1980s, we kind of thought the same way about cable TV. Then, suddenly, we had startup formats like Comedy, Food, Home and Garden, and finally

local channels. S-DARS appears to be following the same kind of progression. Having two operators in the US insures that there are options – both between operators and in terms of the programming choices. This fact-of-life will likely continue, limited only by technology and spectrum.

Locating additional revenue sources

With nearly five million total subscribers in the US, S-DARS is a success in terms of penetration and mind-share. However, like its DBS counterpart, profits are illusive. It is generally a good strategy to seek additional revenue sources from the same infrastructure. Simply charging for what, previously, was free within a single subscription is not likely to be very popular. On the other hand, people will pay a little extra for value received. While I cannot possibly guess what creative minds will invent for programming of this sort, it is clear that electronic media such as S-DARS are now capable of producing literally anything imaginable.

Holding onto customers by keeping them happy

I believe it can be summed up by saying - - that which keeps current

customers happy will, eventually, attract more (e.g., VC's suggestions, above). An important feature of S-DARS is the perceived better audio quality that digital provides. It would not make sense to attract customers with a good service, then allow it to go down hill simply to add more content (e.g., stealing bits from the existing 100 channels with their respective loyal listeners).

Making the service readily available to new customer segments

My final point relates to how the current subscriber base might be expanded by removing barriers rather than expanding the service (which should also be done). Both Sirius and XM have worked hard to get the automobile manufacturers on board. As the largest single investor in XM, General Motors saw an opportunity not unlike that of On-Star. Putting XM together with GM was a marriage made in heaven. Sirius did not have a similar pedigree, so has had to work harder to develop the right relationships with manufacturers. The close tie between XM and GM is enough to encourage Ford to go another way, and Sirius was there for them. I, personally, have been frustrated by the approach taken by Toyota, the company I keep, so to speak, with respect to vehicles. Only now has Toyota agreed to offer XM in some of their vehicles, beginning next year. Without such pre-installation, I am left with two options: (1) using a “portable” system in the form of SkyFi (which I can conveniently take in-doors to use in my XM Boombox) and (2) have a car stereo place install an after-market system (which I did, but have to suffer a lack of proper integration with the AM/FM radio). What we want to happen is that new customers find S-DARS right their in front of them without having any hassle to deal with. A valuable suggestion came from Drew Kaplan, CEO of IS-West. He suggests that his beloved Sirius service could appear in a variety of unusual



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places, such as Apple's iPod and possibly even wrist watches.

Back to the Sphinx

According to the Greek playwright, Sophocles, Oedipus beat the Riddling Sphinx at her game to gain notoriety and eventually the throne. For S-DARS, getting more spectrum will require the kind of determination and intelligence shown by Oedipus. To grasp the complexity of the riddle, you only have to look at the large spectrum chart available on the Internet from the National Telecommunications and Information Agency (NTIA) – at <http://www.ntia.doc.gov/osmhome/allochrt.html>. This presents all of the frequency assignments within the US in terms of what is available to the civilian and government sectors. DBS systems have the luxury of lots of spectrum and the fixed dish at the user, with the ability to view multiple orbit slots (as many as three with DIRECTV's "Triple LNB" design). Such an arrangement is not as feasible for L and S band, for which user antennas must be small in size and wide in orbital coverage.

Getting more spectrum for S-DARS expansion probably requires changing the ITU allocations to increase that available for BSS (which encompasses both TV and radio). Others in terrestrial wireless are likewise making this move. The process we all must follow takes many years since it requires getting on the World Radiocommunication Conference (WRC) agenda and developing the necessary consensus among ITU members. The next WRC is scheduled for October 8 to November 2, 2007, in Geneva, Switzerland, which means that proposals are already being advanced at preparatory meetings now underway. Whichever S-DARS operator can solve this modern Riddle of the Sphinx will have more than an upper hand in capturing the true throne of radio broadcasting. **SM**

Bruce Elbert has over 30 years of experience in satellite communications and is the President of Application Technology Strategy, Inc., which assists satellite operators, network providers and users in the public and private sectors. He is an author and educator in these fields, having produced seven titles and conducted technical and business training around the world.



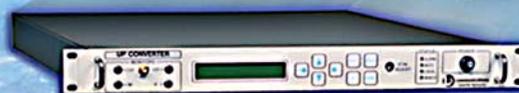
During 25 years with Hughes Electronics, he directed major technical projects and led business activities in the U.S. and overseas. He is the author of The Satellite Communication Applications Handbook, second edition (Artech House, 2004). Web site: www.applicationstrategy.com / Email: bruce@applicationstrategy.com

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Executive Spotlight

Stenews Managing Editor, Virgil Labrador recently spoke with Robert McCollum, senior vice president of equipment manufacturer Comtech Telecommunications Corporation and president of Tempe, Arizona-based Comtech EF Data Corporation. Previously, he was founder and president of Comtech Communications Corporation. When Comtech Communications merged with Comtech EF Data, McCollum was appointed president of the combined entity. Prior to joining Comtech, McCollum was a vice president of engineering at EF Data Corporation. McCollum was co-founder and vice president of Microwave Systems Engineering, and president when the company was acquired by EF Data Corporation. He also held engineering positions at Hughes Aircraft and Motorola. McCollum has a BSE degree from Arizona State University and an MSE degree from California State University. Excerpts of the interview:

Q. For the benefit of our readers— can you give us a brief overview of what Comtech EF Data activities are and what is your position in the market in terms of market share?

A. Comtech EF Data is a subsidiary of publicly held Comtech Telecommunications Corporation. Comtech Telecommunications Corp. posted significant sales growth driven by strong demand for our products, particularly in the telecommunications transmission and mobile data communications segments, accompanied by dramatic operating efficiencies. With our growth over the past year and strength in the industry, we were the recipient of a distinguished award, Business 2.0 Magazine’s “#1 Fastest-Growing Technology Companies for 2004” in their ‘B2 100’ Ranking. Additionally, we were ranked in Fortune Small Business Magazine’s “America’s Fastest-Growing Small Public Companies.”

Located in Tempe, Arizona, Comtech EF Data designs and manufactures a broad range of data and RF satellite communications equipment. The data products include Satellite Modems, Monitor & Control Software and a TCP/IP Performance Enhancement Proxy. The line-up of RF offerings includes Converters, Solid State Power Amplifiers (SSPAs), Transceivers and Satellite Terminals.

With a reputation for providing unparalleled product quality and reliability, we are committed to delivering products that continue this tradition.

March 2005



Robert McCollum
President, Comtech
EF Data

The combined effort between Comtech Vipersat Networks and Comtech EF Data maximized the benefits of the Vipersat Management System’s traditional network monitor and control functions by allowing enhanced capacity and bandwidth management capabilities with the innovative IP technology of the CDM-570L Satellite Modem.

Comtech EF Data is recognized as a technology leader and innovator, with offerings such as the industry’s most advanced and bandwidth efficient methods of forward error correction, Low Density Parity Check Codes (LDPC) and Turbo Product Coding (TPC), an array of modulation techniques plus advanced IP-centric features, such as compression and Quality of Services (QoS) enabling satellite links to be maximized.

Our telecommunications transmission products are used in a wide variety of commercial and government applications, including the transmission of voice, video and data over the Internet, long distance telephone, broadcast, cable and highly secure defense applications.

Q. How do you think the satellite equipment market is doing? Is it getting better and where is it heading? What are the driving forces in the market?

A. Comtech EF Data participates in the ground equipment sector of the satellite industry. Demand increased in 2004 for VSAT equipment in both commercial and government sectors. We have experienced consistent growth in unit shipments. While there has been increased pricing pressure, our growth has been supported by a combination of new deployments and replacements for installed systems. The primary motivator for replacing installed systems is the resulting efficiencies our advanced technologies provide. Most organizations continue to focus on methods for

Executive Spotlight

“...We believe that satellite-based services will continue to compete with terrestrial and microwave solutions. Therefore, it is critical that equipment vendors enhance bandwidth efficiency options that enable improvement of monthly recurring operational costs for users of satellite communications...”

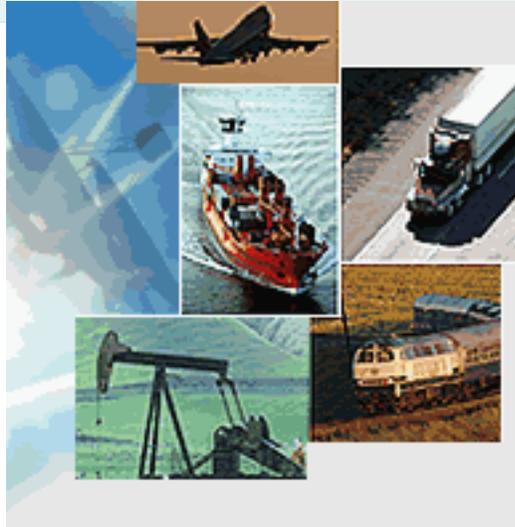
reducing operating expenses, driving the need for satellite modems with bandwidth and power efficient forward error correction and modulation.

Another factor supporting VSAT growth is continued expansion of cellular subscribers in rural areas. Bandwidth efficient satellite-based solutions are enabling GSM operators to provide instant infrastructure and increase coverage in remote and inaccessible locations where they previously could not realize return on investment.

Other areas of market potential include broadcast and satellite news gathering. With broadcast still representing 70% +/- usage of satellite bandwidth, many organizations are looking at higher order modulation as a means to more cost effectively distribute content. And, mobile fleets deployed for satellite news gathering require cost-effective, flexible and reliable solutions for automated bandwidth allocation, application and switch loading plus video streaming and Voice over IP. We expect the evolving DVB-S2 standard to have a positive impact on interactive point-to-point applications – providing flexibility, increasing throughput and enabling operating cost savings to be realized.

Q. Your company has made some acquisitions and mergers in the last couple of years. What was the strategy behind these acquisitions and how are they working out? Will we see any more acquisitions in the future?

A. Our focus on the convergence of voice, data and video traffic over hybrid networks led to the acquisition of Vipersat



Networks in 2003. Understanding the market need for advanced network monitor and control functions, we embarked on development initiatives to fully integrate the Comtech EF Data IP-enabled satellite modems with Comtech Vipersat Networks' network and capacity management system. The combined effort between Comtech Vipersat Networks and Comtech EF Data maximized the benefits of the Vipersat Management System's traditional network monitor and control functions by allowing enhanced capacity and bandwidth management capabilities with the innovative IP technology of the CDM-570L Satellite Modem. The revolutionary partnering gives satellite service providers and enterprise operators the ability to dynamically adjust bandwidth utilization based on application, load or schedule. Customers realize the benefits of minimized operating costs and increased efficiency and reliability.

Based on the needs of the GSM market for high performance satellite communications solutions, we formulated a team to identify vendors with comple-

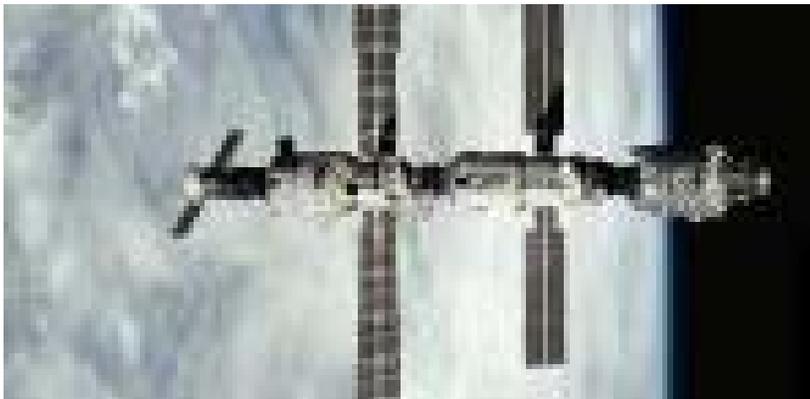
mentary offerings that would support the cellular industry's rollout of 2.5G and 3G networks and support the astounding growth in cellular subscribers. Memotec Inc., based in St. Laurent, Quebec, Canada was acquired in 2004.

Memotec's product line of access devices and voice gateways allows customers to consolidate multi-service traffic over common packet-based network infrastructures such as Asynchronous Transfer Mode (ATM), Internet Protocol (IP) and Frame Relay. The results to service providers and enterprise customers everywhere are high quality voice, bandwidth optimization, adaptability and reliability. Additionally, our collective technologies offer a turnkey solution for cellular backhaul over satellite.

In 2004, Comtech EF Data secured a technology partner, Applied Signal Technology, Inc. that complemented the forward error correction and modulation in our satellite modems to provide even greater bandwidth efficiencies than the market has ever had the opportunity to leverage. The resulting technology, DoubleTalk™ Carrier-in-Carrier™ allows full duplex satellite links to transmit concurrently in the same segment of transponder bandwidth. It addresses common challenges encountered when utilizing satellite communications, including the requirement for increasing throughput of point-to-point links without utilizing additional transponder resources, the need to expand networks with multiple modulators and/or demodulators and limited rack space.

Moving forward, we will continue to identify opportunities where we can further optimize satellite communications and reduce total cost of ownership for our customers. As such, Comtech will explore potential acquisitions, strategic partnerships and joint ventures where the

Executive Spotlight



integration of technologies and products can complement our offerings.

Q. What can we expect from Comtech EF Data this year?

A. We believe Comtech is positioned to do even better in 2005 than in 2004. We will continue to focus on delivering broad-based growth driven by our adherence to a strategy that emphasizes product and technology leadership, entrepreneurial management and a balanced customer base. In addition, we expect to continue our disciplined approach of identifying, assessing and integrating acquisitions.

The rollout of HDTV services will require deployment of new bandwidth efficient satellite modem solutions and better video compression technologies for both Broadcast and DSNG applications. We anticipate the result will be greater demand for new, efficient VSAT equipment. Additionally, a large portion of the U.S. government's deployment of a new network-centric communications infrastructure is satellite-based. We expect this will yield positive impact for satellite equipment manufacturers.

On the horizon are new products and technologies that focus on lowering total cost of ownership, including commercial and government satellite modems, RF converters and transceivers. Target applications for the Comtech EF

Data products are cellular backhaul, GSM, broadcast, satellite news gathering, offshore, government and military.

Q. Are there any issues hindering the growth of the market that you feel needs to be addressed, i.e. regulatory, technical, etc.?

A. We believe that satellite-based services will continue to compete with terrestrial and microwave solutions. Therefore, it is critical that equipment vendors enhance bandwidth efficiency options that enable improvement of monthly recurring operational costs for users of satellite communications.

Investment firms now control the majority of commercial satellite fleets. We expect the focus will be on optimizing operations and achieving maximum profits versus committing capital and resources to new satellites and service offerings. This could have a negative impact on the deployment of new infrastructure and equipment. **SM**

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MARKET INTELLIGENCE

Going For More Than 24/7!

by Martin Jarrold
Chief, International Programme Development
GVF



Is there more than 24/7!

Well, for the GVF there certainly is – actually there's 360 degrees of longitude and 180 degrees of latitude. Whilst, recently, I was travelling over just a small part of that range, from Budapest to London, I decided that this organization's range of planned activities, all designed to enhance the satellite industry's market access potential and to promote satellite-based communications solutions, over the next few months and beyond deserved much more of the kind of focused attention that an important platform like SatMagazine.com could provide. You read it here first!

I can't possibly include everything though, not in just one column, so you'll have to keep reading over future months too! I'm just going to concentrate here on a few regions of the world, those for which I have primary responsibility in GVF: Africa, the Arab Region, and Europe.

In fact, I had just left the Next Generation Telecoms – Central and Eastern Europe Conference in the Hungarian capital, after moderating a successful industry roundtable session on the subject of "Realizing Satellite Communication's Potential for Higher Bandwidth". Industry panellists had tackled such issues as the role of satellite communication technology in satisfying high-bandwidth demand, the definition of strategies to effectively close the digital divide between Western and Central/

Eastern, how open standards-based satellite solutions will meet the challenge of providing cost-effective broadband access, and quantification of the impact of satellite-hybrid projects on the roll-out of broadband to the mass market. More than 100 roundtable attendees were clearly very focused on the near-future prospects for Central and Eastern European satellite broadband.

Continuation of the elevation of the international satellite industry's profile, across all regions, and through unique event platforms, is just one of the things GVF does very well, and throughout 2005 our members will be positioned in front of crucial groups such as end-users and government agencies. Targeted workshops, seminars, meetings and conference

sessions will focus on the issues of the moment such as fixed and mobile telecommunications, broadcasting, market access and new trends and developments... Here's a very brief snapshot of some of the events taking place over the next few months between longitude 15 degrees W to 60 degrees E, and latitude 70 degrees N to 35 degrees S.

AFRICA

From 15-17 March Newcom Africa 2005 will take place in London. This high-level event, organized in conjunction with AITEC, will investigate the demand for sustainable telecommunications in the African region. Hybrid solutions and "Bridging the Digital Divide" will be prime topics. See the events calendar at



MARKET INTELLIGENCE

www.gvf.org for more.

ARAB REGION

The World Trade Centre, Dubai, will play host to this year's CABSAT event from 8-10 March 2005. The featured GVF event will be the Middle East Satellite Summit on 9 March, organized in coordination with the Middle East Broadcasting and Communications sector. The Summit has attracted a significant and impressive line-up of speakers from major players within the satellite industry. The event will examine the trends and developments within the dynamic Middle Eastern market and will consist of several roundtable sessions on the Enterprise, SME/SOHO and Residential sector markets. Further information on the Summit may be obtained from martin.jarrold@gvf.org and details on the

CABSAT Conference and Exhibition from www.cabsat.com.

GVF will repeat the successful Middle East and North Africa Satellite Summit (MENASAT), which will be held on 26-28 September 2005 in Dubai. The event will reflect the unprecedented demand for satellite solutions, the increase in demand for VSAT and will highlight the major business opportunities in the region. Further details may be obtained from helen.jameson@gvf.org.

EUROPE

The Mediacast Conference and Exhibition 2005 takes place 10-12 May in London and features:

10 May – The GVF Interoperability and Open Standards Forum

11 May – GVF VSAT Installation Training Course Level 1

12 May – GVF VSAT Installation Training Course Level 2

12 May – GVF Keynote "The Interoperability Question: 'Open Standards', Strategies and the Satellite vs. Cable Market Challenge"

Contact martin.jarrold@gvf.org or go to www.mediacast.com for more. **SM**



Martin Jarrold is the Director, International Programs of the Global VSAT Forum. He can be reached at martin.jarrold@gvf.org For more information on the GVF go to www.gvf.org

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COMPANY	Symbol	PRICE (As of Feb. 28)	52-wk Range
APT SATELLITE	ATS	1.37	1.25 - 2.52
ANDREW CP	ANDW	12.10	9.30 - 21.6
ASIA SATELL TELE	SAT	18.48	15.20 - 20.52
BALL CP	BLL	44.40	30.20 - 45.20
BOEING CO	BA	54.97	38.04 - 55.48
BRITISH SKY ADS	BSY	43.61	33.22 - 55.29
CALIFORNIAAMPLIFIER	CAMP	7.22	5.12 - 17.20
COM DEV INTL LTD	CDV.TO	2.85	2.15 - 3.80
COMTECH TELECOM CORP	CMTL	35.96	14.93 - 39.98
THE DIRECTV GROUP	DTV	15.01	14.65 - 18.81
ECHOSTAR COMMUNICATIONS	DISH	29.75	26.95 - 7.40
FREQUENCY ELECTRONICS	FEI	15.10	10.22 - 17.13
GILAT SATELLITE NETWORKS	GILTF	7.48	3.95 - 9.86
GLOBECOMM SYS INC	GCOM	6.18	4.67 - 7.58
HARRIS CORP	HRS	66.70	42.37 - 69.15
HONEYWELL INTL INC	HON	37.97	31.23 - 39.50
INTEGRAL SYSTEMS	ISYS	20.84	15.35 - 20.73
KVH INDUSTRIES INC	KVHI	10.15	6.61 - 17.472
L-3 COMM HLDGS INC	LLL	72.10	52.40 - 77.26
LOCKHEED MARTIN CORP	LMT	59.22	43.10 - 61.77
NEWS CORP	NWS	17.21	15.30 - 19.41
NORSAT INTL INC	NSATF.OB	0.508	0.460 - 83.00
NTL INC	NTLI	64.89	46.65 - 73.79
ORBITAL SCIENCES	ORB	10.47	9.67 - 14.19
PEGASUS TV	PGTV	14.22	5.185 - 22.20
QUALCOMM INC	QCOM	36.05	30.60 - 44.99
RADYNE COMSTREAM	RADN	9.12	6.26 - 11.30
SCIENTIFIC ATLANTA	SFA	30.90	24.61 - 36.50

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