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October 2006 Worldwide Satellite Magazine Vol. 4 No. 6

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C-Band Interference from Terrestrial Wireless Deployments

The Global VSAT Forum (GVF) has raised the alarm on the possibility of fixed and mobile satellite services being disrupted by interference from new services such as Wi-Mx and Broadband Wireless Access in the extended C-Band frequencies of 3.4 to 3.7 GHz.

According to the GVF, if national and inter-governmental organizations fail to address this trend, the satellite industry may be prevented from delivering users with FSS and MSS services for voice, data and video services in developed and developing countries.

GVF said that there is an effort by the terrestrial wireless community for a global allocation from the International Telecommunication Union (ITU) to put future mobile phone networks like IMT advanced and 4G services in "standard" C band frequencies of 3.4 – 4.2 GHz. These frequencies, according to GVF, are a primary means by which the satellite industry provides millions of users with mission-critical communications solutions for distance learning, tele-medicine, universal access, disaster recovery, and many other vital applications.

The 'extended' C band frequencies of 3.4 to 3.7 GHz have already been identified by national administrations for use by new services like Broadband Wireless Access (BWA) and WiMax, GVF said. It fears that if WiMax services are introduced, it will cause interference in the satellite services community for FSS services, feeder links and MSS services. GVF said interference in satellite ground stations and their related services are already occurring in Bolivia, in Caribbean, China, Russia, throughout Africa and in Hong Kong, Australia, Fiji and Indonesia.

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To tackle the issue, GVF and other satellite groups are now asking their telecom regulatory authorities to prevent the reassignment of the C band frequencies to WiMax and IMT 2000 services.

This certainly is a very serious issue that demands action and attention from the satellite industry. With the growing popularity of wireless services and emerging hybrid services using both satellite and wireless technologies --both should be able to coexist and flourish without interference.

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Virgil Labrador

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calendar of events 2006

If you have an event that you wish to submit to this list, please email it to: virgil@satnews.com

Oct. 10-13, Qwest Center, Omaha, USA
Strategic Space and Defense 2006
Tel: 719.576.8000
Fax: 719.576.8801
Web: http://www.StratSpace.org

Oct. 10-13, Kiev, Ukraine
Information Communication Technology 2006
Valentyna Podgorodetska
Tel.: +44 (0) 207 596 5089 (direct) / 5000
Fax: +44 (0) 207 596 5117 (direct)/5111
E-mail: vp@ite-exhibitions.com
Web: www.ukraine-telecom.com

Oct. 18-20, International Exhibition Centre
Kyiv, Ukraine
Eastern Europe Broadband Convention (EEBC) 2006
Phone: +380 (44) 50-164-50
Fax: +380 (44) 50-164-51
Web: www.eebc.net.ua/eng/

Oct. 19 - 21, World Trade Centre, Mumbai, India.
Broadcast India 2006 Exhibition & Symposium
Kavita Meer
Tel: 91 22 2215 1396/2215 2721
Fax: 91 22 2215 1269
Mobile: 98200 56060
Email: saicomtradefairs@vsnl.com
Website: www.broadcastindiashow.com

Oct. 24 - 27, Wanchai, Hong Kong, China
CASBAA Convention
Rebecca Kennedy - CASBAA
Tel: +(852) 2854 9913
Fax: +(852) 2167 8168
Email: rebecca@casbaa.com
Website: www.casbaaconvention.com/

Oct. 31-Nov. 2, Abuja, Nigeria
2nd West Africa Satellite Communications Summit
Global VSAT Forum
Martin Jarrold
Tel.: + 44 1727 884 739 / Fax: + 44 1727 884 739
Email: martin.jarrold@gvf.org
Web: www.gvf-events.org/1.html

Nov. 7- 9, Houston, TX, USA
Offshore Communications 2006
Tel: 1 (772) 221 7720
Fax: 1 (772) 221 7715
Email: ipeterson@offshoresource.com
Website: www.offshorecoms.com.

Nov. 13-15, London, UK
Global MilSatCom 2006
Tel: +44 (0) 20 7827 6000
Fax: +44 (0) 20 7827 6001
Email: client_services@smi-online.co.uk
Web: www.globalmilsatcom.com

Nov. 16, London, UK
Personal TV Conference
Chris Forrester
Tel: +44 20 8948 8561
Fax: +44 20 8940 6009
E-mail: info@tvconferences.com
Web: www.tvconferences.com

Nov. 28, New York, NY, USA
ISCe Satellite Investment Symposium NYC '06
David Bross
Tel: +1-301-916-2236
E-mail: dbross@hfusa.com
Web: www.isis-nyc.com

Nov. 28, New York, NY, USA
The SSPI Future Leaders Dinner
Longbottom Communications
Tel: 1-703-534-0885 or
info@longbottomcommunications.com
Web: www.sspi.org

Nov. 29-30
New York, NY, USA
SATCON 2006
Tel.: 203-371-6322
info@jdevents.com
Website: www.satconexpo.com

FEATURED EVENTS

ISCe Satellite Investment Symposium

ISIS NYC '06

November 28, 2006, New York City

With the high profile takeover of private investments firms of major satellite companies in the last few years, the investment community has given a much needed boost to the satellite industry. To fill a void in the industry for a quality conference on the investment side of the satellite business, leading industry conference organizer Hannover Fairs USA, Inc. announced the launch of its inaugural ISCe Satellite Investment Symposium NYC '06 (ISIS NYC '06), which will take place November 28, 2006, at co-host Jones Day's law office in midtown Manhattan, New York City.

ISIS NYC '06 will bring together high-profile executives in the satellite television (DBS), satellite radio (DARS), mobile satellite (MSS), fixed satellite services (FSS), IPTV, Broadcasters, Digital TV/SyndEx and Mobile Video sectors of the satellite industry with leading New York financiers and members of the Wall Street community.

"Since the cancellation of the SkyFORUM event two years ago, the satellite industry has not had a true satellite finance event in New York City. I am pleased to announce the launch of this new executive-level one day program, which will focus on the financial foundations of the multi-billion dollar satellite communications marketplace," said Art Paredes, president and CEO of Hannover Fairs USA, Inc.

"Given the increasing role of private equity players in the commercial satellite communications sector, the financial aspects of this great industry have taken front and center stage over the last few years," said David Bross, chairman of ISIS NYC chairman and the ISCe Conference & Expo. "We and our esteemed industry and media partners believe there is a need for a venue that fosters dialogue and debate between leading members of the financial community and executives representing the multi-faceted satellite services sector," he added.

Key sessions at ISIS NYC'06 include:

- **The Future and Growth of Satellite Television**
- **Satellite Radio: Will the Rapid Pace of Growth Continue?**
- **Mobile Satellite Services and the New Customer Markets**
- **WTA Translating the Trends Workshop**
- **Consolidation and Market Shares Projections for Fixed Satellite Services Operators**
- **The Broadband Game: How Does Satellite Enter the Fray?**
- **Defining the Continued Battles Between Broadcasters and Satellite Companies**

"The conference is different from other events in the satellite industry as it is the only financial seminar, held annually in New York, to focus solely on the $85 billion business of financing and investing in commercial satellite-based concerns. It will be a unique blend of panel sessions and executive interviews exclusively featuring executives at the chief financial officer (CFO) level and higher," added Bross.

The one-day conference is not just all business, though, with opportunities for networking as well. The organizers of ISIS also encourage participants to attend the new SSPI Future Leaders Dinner at the conclusion of ISIS at The Princeton Club in Manhattan. This annual fundraising reception and dinner is the premier social networking event of "Satellite Week in NYC," featuring ISIS NYC '06 and other major industry events. This dinner will honor future leaders who are currently making a difference in our industry and an executive who is recognized for his or her success in mentoring industry professionals. ISIS NYC '06 attendees as well as SSPI and SIA members are eligible for a 10 percent discount to this dinner.

For more information on ISCe 2006 Conference and Expo contact the Conference Chairman, David Bross at +1-301-916-2236 or e-mail at: dbross@hfusa.com or go to www.isis-nyc.com SM

FEATURED EVENTS

ISIS NYC '06 Conference Program

PROGRAM: TUESDAY, NOVEMBER 28, 2006

As of September 22, 2006; subject to change without notice.

Venue: Jones Day · 222 East 41st Street · New York, NY · www.jonesday.com

8:00–8:30 am ISIS NYC '06 Networking Breakfast

Sponsored by: eutelsat communications via satellite

8:30–8:45 am Welcome Remarks and Introductions

Welcome:

Art Paredes, President and CEO, Hannover Fairs USA, Inc.
David Bross, Chairman - ISIS NYC '06
Delbert Smith, Co-chair, ISIS NYC '06, Senior Telecommunications Counsel - Jones Day

8:45–9:45 am Satellite CEO Interview #1 "DBS: 1/4 of U.S. TV Households Can't Be Wrong, Or..."

The consumer satellite business blew the socks off of the cable operators for about a decade post-1994, yet today the future presents bigger challenges. Cable is in place as the only true provider of a large scale "bundle" of telephone, video and Internet services, but the telephone companies are getting their offerings together fast. Without control over the different pieces of its own bundle, can U.S. DBS operators continue long-term subscriber gains, cash flow and Average Revenue Per Unit (ARPU) growth? How much bandwidth and resources are required to deliver the best of local and national HDTV signals into the largest percentage of American homes? What about the other advanced services? How do they resonate? What are the most topical legal and regulatory issues? What about piracy? And how far off are program access and differentiation solutions? This showcase panel promises to provide the answers.

Moderator:

Jimmy Schaeffler, Esq., Chairman & CSO - The Carmel Group

Panelists

Michael Palkovic, CFO - DirecTV (Invited)
Mary Frost, CEO - GlobeCast America

Analyst:

Craig Moffett, Senior Analyst for U.S. Cable and Satellite Broadcasting - Sanford Bernstein

9:50–10:50 am Satellite Finance Session #1 "Analyst's Corner: Cutting the Hype and Making the Grade"

One of the most difficult decisions that people involved in the satellite industry have to make is deciding which industry sectors and companies are going to succeed and which will fail. This decision-making process involves cutting through the hype and (on occasion) misinformation while, at the same time, taking a "best guess" as to what companies likely are to succeed. These industry analysts will offer their opinions and views on what they have learned during the past five years, where we are today and where we are likely to be in the next three years. Want to know "what's in" and "what's not?" They will tell you. What will be the dominant long-term satellite consumer play: telephony, video or radio? How do the FSS players fit in? What about the bundle-battle being fought within DBS today? Can satellite radio turn the financial corner and finally make money? Which metrics stick when it comes to ARPU, SAC, churn and bandwidth?

10:50–11:15 am Coffee Break

Sponsored by: BOEING

11:15 am–12:15 pm Satellite CEO Interview #2 "Mobile Satellite Services: The Re-Infusion of Capital"

The mobile satellite services (MSS) market is on the verge of a breakout, as new services and technologies stimulate renewed investor interest in this once troubled sector. Mobile voice, video and data satellite services are now in

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high demand. Go figure? Both commercial and government markets and investors are starting to seriously reconsider the MSS value proposition. Well-funded ventures such as ATC are a clear sign the MSS sector is again becoming a core financial focus. This group of MSS CEOs will explore the emerging market opportunities and determine where value truly lies within this remarkable, re-emerging sector.

Moderator:

Christopher Baugh, President - NSR

Panelists

Michael Butler, Chief Operating Officer - Inmarsat
Matthew Desch, Chairman and CEO - Iridium Satellite LLC
Alexander Good, CEO - Mobile Satellite Ventures (MSV)
Jay Monroe, Chairman and CEO - Globalstar, Inc.

12:15–1:45 pm ISIS NYC '06 Leadership Luncheon

Sponsored by 

State-of-the-Industry Address:

John Kealey, President & CEO - iDirect Technologies

Keynote:

The Hon. Jonathan Adelstein, Commissioner - FCC | FCC website

Because there truly is a close connection between what Wall Street does and what Washington, D.C. says, it is most appropriate that the inaugural ISCe Satellite Investor Symposium (ISIS NYC '06) event ties the two together. This luncheon keynote interview is intended to bring a dialogue to industry and government players, both bent on building and/or protecting their turfs and constituencies. What will the FCC do with new spectrum bands, especially those trying to meld terrestrial with space-based infrastructures? What's hot on the DBS and satellite radio sides of the ledger? What has been the effect of the Sarbanes-Oxley Act on Wall Street and its constituents? How is the FCC working vis-à-vis Congress? These are but a handful of questions and issues that will be addressed during a luncheon designed to bring government officials, Wall Street financiers and industry attendees into the same networking forum.

1:45–2:45 pm Satellite Finance Session #2 "FSS: The Satellite Trunk Called Fixed Services"

Lead in the United States by SES Americom, Intelsat and Loral Skynet, the Fixed Satellite Services (FSS) players have huge businesses, yet face big challenges in their drives to assure mid- and long-term financial success. How will consolidation impact customers and the industry? What new spectrum can be developed to expand resources, especially in the United States? What's the next Killer App? How does a strong business get built around services versus bandwidth? How can the government expand the access to bandwidth resources through its commitment to commercial operators? What's the role of satellites in delivering entertainment to handhelds and mobile? These and a whole fleet of additional Qs and answers promise to result from this hour-long panel session.

Moderator:

David Bross, Chairman - ISIS NYC '06

Panelists:

Edward Horowitz, CEO - SES Americom
Pradman Kaul, President and CEO - Hughes
John Kealey, President & CEO - iDirect Technologies
David McGlade, CEO - Intelsat (Invited)
Stephen T. O'Neill, President - Boeing Satellite Systems International, Inc.
Michael B. Targoff, CEO - Loral Space & Communications (Invited)

Analyst:

Armand Musey, President and Partner - Near Earth LLC

FEATURED EVENTS

2:50–3:50 pm Satellite CEO Interview #3
"Satellite Radio: A Struggling Giant or Continuing High-Flyer?"

Satellite-delivered consumer services remain a darling (or potential darling) of Wall Street and the consumer electronics marketplaces. However, there are formidable competitors already in place or lurking in the shadows, each looking to challenge the status of XM Radio, Sirius Satellite Radio and WorldSpace. New devices and infrastructures, such as MP3 players and the Internet, are invading the moving vehicle. Terrestrial radio also is ramping up, offering new digital services with fewer ads—and potentially new content. What truce will be realized long term within the terrestrial radio camp? Is satellite radio really still all about subscriber growth in these early years—like it was for DBS—or is free cash flow the early metric? With home, vehicle and mobile offerings, what is the true size of the potential sat radio subscriber base? Content-wise, what's beyond Stern, Oprah, Dylan and Elvis? Will the government entertain another spectrum and/or another potential player to upset the sat radio duopoly? These and a bunch of other topics should crackle these not-to-be-missed audio bits.

Moderator:

Andy Pasztor, Senior Special Writer - The Wall Street Journal

Panelists

Mel Karmazin, CEO - Sirius Satellite Radio (Invited)
Hugh Panero, CEO - XM Satellite Radio (Invited)
Noah Samara, CEO - WorldSpace (Invited)

3:50–4:15 pm Afternoon Refreshment Break

Sponsored by

4:15–5:15 pm Satellite Finance Session #3
"Broadcasters and Satellite: How Long Can The Romance Last?"

Satellite is the backbone of the television business, and it's probably not too much of a stretch to say that television is the backbone of satellite business. They have helped each other prosper for three decades. The TV networks still rely heavily on the fixed satellite services to cover remote events and deliver programming to affiliates scattered across the nation. And TV stations count on the service to import timely syndicated shows and capture pictures of news, no matter where it happens. Now, terrestrial fiber is once again threatening to break up the partnership. To make sure that doesn't happen, FSS is promising greater flexibility, reliability, economy and capacity. Will it be enough to sate TV's ever-increasing demands? Will TV and satellite grow old together? This panel of broadcast veterans and satellite executives has the answers.

Moderator:

Harry Jessell, Editor and Publisher - TVNEWSDAY.com

Panelists:

Patrick Brant, CEO - Loral Skynet
Bryan McGuirk, President of Media Solutions - SES Americom
Robert Ross, Vice President, East Coast Operations - CBS Corp.
Ron Samuel, Chief Operating Officer - Eutelsat Inc.
Andy Setos, President, Engineering - Fox Group
Phil Spector, Executive Vice President and General Counsel - Intelsat

Analyst:

April Horace, Analyst - Hoefer and Arnett Inc.

5:15 pm Adjournment

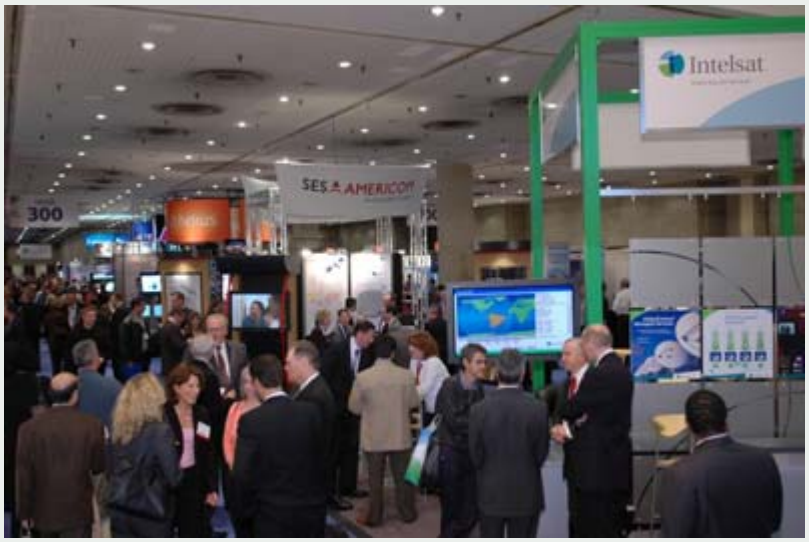
Remarks

FEATURED EVENTS

SATCON 2006 To Address Key Industry Issues

SATCON 2006
New York City, November 29-30, 2006

The 5th Annual SATCON - Satellite and Content Delivery Conference & Expo (www.satconexpo.com) to be held in New York City from November 29-30, 2006 in New York City will be tackling key industry isues. The two-day conference and expo will include keynote presentations from veteran journalist Dan Rather, Global Correspondent for HDNet, and David Hill, Chairman and CEO for Fox Sports Television Group and President of Entertainment for DirecTV Inc., SATCON is one of the fastest-growing events of its kind that explores applications for satellite and content delivery over satellite, fiber and hybrid networks and this year will be held in conjunction with the HD World Conference & Exposition (www.hdworldshow.com).



Additional industry leaders will be on hand to discuss critical issues involved in satellite and content applications and advances. Speakers and topics currently confirmed for this years industry keynote presentations include:

• Michael Butler, COO, Inmarsat
• Ed Horowitz, President & CEO, SES Americom
• Pradman Kaul, CEO, Hughes Network Systems
• David McGlade, CEO, Intelsat
• Ron Samuel, COO, Eutelsat Inc. Moderator:
• Rebecca Cowen-Hirsch, PEO for SATCOM, Teleport and Services, Defense Information Systems Agency (DISA)

"SATCON has the largest end-user audience of any satellite show. SATCON features over 70 end-user speakers which is over four times that of any other satellite show and also more than any other IT or communications conference in the country. SATCON is the only show to focus exclusively on satellite and communications applications for end-users, as opposed to other events that include satellite industry issues like satellite launch, telemetry, satellite manufacturing, among others," said Michael Driscoll, SATCON Event Director.

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Approximately 120 speakers will discuss real-world issues and solutions during a variety of conference sessions covering applications for industries such as media and entertainment; broadcast and cable; military, defense and Homeland Security; federal, state and local government; retail and hospitality; financial, banking and insurance; energy, oil and gas; manufacturing and automotive; and healthcare and pharmaceuticals, among many others. SATCON also features an expo that has increased by at least 50% in size and scope each year, and that highlights a wide variety of communications, networking and content delivery solutions.

Sample topics to be addressed at the 2006 SATCON Conference include:

- Think Tank 2006: A Discussion of Industry & Military Cooperation
- Fundamentals of Satellite Communications Systems - Part 1 and 2
- Challenges of Changing Technology: Real and Perceived
- The Next Generation Content Distribution Backbone: Will it be Satellite?
- Dual Use of Commercial Technologies to Meet Military and Government Requirements

"We live in a society in which new information and communications solutions are introduced almost daily with the potential to impact every aspect of our lives." said Susan Irwin, conference chair for SATCON and president of Irwin Communications. "Over the last five years, SATCON has become THE place to go to keep up with the emerging trends in satellite communications that will continue to help shape the content delivery and telecom requirements of the government, media and enterprise sectors. SATCON is a one-of-a-kind event saturated with top industry leaders, extensive networking opportunities and breakthrough education."

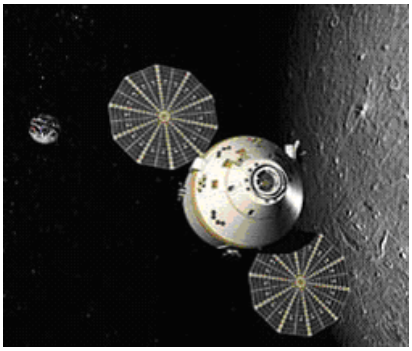
A complete speaker roster, session details and event / registration information can be found at **http://www.satconexpo.com/default.asp**.

SATCON is also sponsoring two unique pre-show events: the Triple Play/IP Communications Technology & Investment Summit, and the Satellite-Based Disaster Recovery Summit, both on November 28, the day before SATCON opens.

Complimentary Expo Only passes are available at **www.satconexpo.com**. 20% discount full conference passes are available for members of the following industry associations: GVF, WTA, SSPI, MSUA, CMMA, SUIRG, and the Government Alliance for Training & Education. Use source code 26SG522 when registering for the discount. SM

INDUSTRY NEWS

NASA Selects Lockheed Martin as Prime Contractor for Orion Crew Exploration Vehicle



The vehicle is Orion will be a multi-purpose capsule to carry astronauts back to the moon and later to Mars. The first flight with astronauts aboard is planned for no later than 2014. Orion's first flight to the moon is planned for no later than 2020. (NASA photo)

WASHINGTON – NASA has selected Lockheed Martin Corp., based in Bethesda, Md., as the prime contractor to design, develop, and build Orion, America's spacecraft for a new generation of explorers.

Orion will be capable of transporting four crewmembers for lunar missions and later supporting crew transfers for Mars missions. Orion could also carry up to six crew members to and from the International Space Station.

NASA said the first Orion launch with humans onboard is planned for no later than 2014, and for a human moon landing no later than 2020. Orion will form a key element of extending a sustained human presence beyond low-Earth orbit to advance commerce, science and national leadership.

The contract with Lockheed Martin is the conclusion of a two-phase selection process. NASA began working with the two contractor teams, Northrop Grumman/Boeing and Lockheed Martin, in July 2005 to perform concept refinement, trade studies, analysis of requirements and preliminary design options. Lockheed Martin will be responsible for the design, development, testing, and evaluation (DDT&E) of the new spacecraft.

Manufacturing and integration of the vehicle components will take place at contractor
facilities across the country. Lockheed Martin will perform the majority of the Orion vehicle engineering work at NASA's Johnson Space Center, Houston, and complete final assembly of the vehicle at the Kennedy Space Center, Fla. All 10 NASA centers will provide technical and engineering support to the Orion project.

In partnership with NASA, Lockheed Martin will lead a world-class industry team that includes Honeywell, Orbital Sciences Corporation, United Space Alliance and Hamilton Sundstrand, supporting NASA in the design, test, build, integration and operational capability of Orion.

The contract is structured into separate schedules for DDT&E with options for production of additional spacecraft and sustaining engineering. During DDT&E, NASA will use an end-item cost-plus-award-fee incentive contract. This makes the award fee subject to final determination after the contractor has demonstrated that it meets the technical, cost, and schedule requirements of the contract.

According to NASA, DDT&E work is estimated to occur from Sept. 8, 2006, through Sept. 7, 2013 with an estimated value of $3.9 billion.

Production and sustaining engineering activities are contract options that will allow NASA to obtain additional vehicles as needed. Delivery orders over and above those in the DDT&E portion will specify the number of spacecraft to be produced and the schedule on which they should be delivered.

Post-development spacecraft delivery orders may begin as early as Sept. 8, 2009, through Sept. 7, 2019, if all options are exercised. The estimated value of these orders is negotiated based on future manifest requirements and knowledge gained through the DDT&E process and is estimated not to exceed $3.5 billion.

Army Awards Six Vendors $5-B Satellite Contract

WASHINGTON, D.C. – The U.S. Army has awarded its five-year $5 billion Worldwide Satellite Systems (WWSS) contract to Boeing Co. and General Dynamics Corp. and to four small businesses: DataPath of Duluth, Ga.; D&SCI of Eatontown, N.J.; Globecomm Systems of Hauppauge, N.Y.; and TeleCommunications Systems of Annapolis, Md.

Under the indefinite-delivery/indefinite-quantity contract, each vendor is required to bring turnkey commercial satellite systems and associated support services for satellite terminals, including all hardware, software, services and data to operate the terminals.

Army officials said both Defense and non-DOD agencies can order from the contract. They explained WWSS products and services will support all federal communications missions,

including disaster relief and homeland security initiatives.

Under the five-year program, WWSS will bring turnkey commercial satellite systems and associated support services for satellite terminals, including all hardware, software, services and data to operate the terminals.

The terminal types include: Combat Support Service Very Small Aperture Terminals (VSATs), Fixed-station satellite terminals, Flyaway VSATs, Military-certified satellite terminals, and Prime mover/trailer-mounted satellite terminals and Deployable satellite Earth terminals.

The program will also acquire six commercial satellite terminals, and will use a minimum of four or a maximum of six prime contractors, including at least two small businesses that meet the full requirements of the program.

U.S. Air Force Successfully Launches New GPS Satellite

CAPE CANAVERAL AIR FORCE STATION, Fla. — A modernized Global Positioning System Block IIR (GPS IIR-M) satellite built by Lockheed Martin was launched successfully on Sept. 25 from Cape Canaveral Air Force Station, Fla.

The satellite, designated GPS IIR-15(M), is the second in a series of eight modernized GPS Block IIR spacecraft that Lockheed Martin Navigation Systems is developing for its customer, the Global Positioning Systems Wing, Space and Missile Systems Center, Los Angeles Air Force Base, Calif.

A Boeing Delta II rocket carrying the GPS IIR-15 (M) spacecraft lifted off from Space Launch Complex 17A at Cape Canaveral Air Force Station, Fla., at 2:50 p.m. EDT, Sept. 24. Following a

vA Boeing Delta II rocket carrying the GPS IIR-15 (M) spacecraft lifts off from Space Launch Complex 17A at Cape Canaveral Air Force Station, Fla., at 2:50 p.m. EDT, Sept. 24, successfully deploying the satellite to a transfer orbit.
(Carleton Bailie - Boeing photo)

nominal 68-minute flight, the rocket deployed the satellite to a transfer orbit.

The spacecraft are the most technologically advanced GPS satellites ever developed and are designed to provide significantly improved navigation performance for U.S. military and civilian users worldwide. The satellite will join the first modernized IIR satellite, GPS IIR-14(M), successfully launched and declared operational last year and 12 other operational Block IIR satellites currently on-orbit within the overall 29-spacecraft constellation. The Air Force dedicated today's mission to honor American POW/MIAs past and present.

The GPS IIR-M spacecraft offer a variety of enhanced features for GPS users, such as a modernized antenna panel that provides increased signal power to receivers on the ground, two new military signals for improved accuracy, enhanced encryption and anti-jamming capabilities for the military, and a second civil signal that will provide users with an open access signal on a different frequency.

Alcatel Alenia Space Wins Contract for German Armed Forces' Satcom BW Satellites

PARIS — EADS Astrium has awarded Alcatel Alenia Space a satellite contract for the next step of the German Armed Forces' satellite communications program Satcom BW Stufe 2. Alcatel Alenia said the contract calls for the design, manufacture and the integration of two military satellites.

Based on the Spacebus 3000B architecture from Alcatel Alenia Space, Satcom BW geostationary multi-missions satellites will be fitted with payloads including Super-High-Frequency (SHF), Ultra-High-Frequency (UHF) and Ku-band transponders from EADS Space. With a launch mass of approximately 2.5 tons and a power of 3.5 kW, the Satcom BW satellites are scheduled for delivery end of 2008, and due to start services early 2009 with an operational lifetime of 15 years.

Alcatel said Satcom BW military communications satellites are key to the effectiveness of the German Armed Forces, and will provide the Bundeswehr with a secured multimedia network, ensuring continuous links between the political and military authorities and deployed units around the world. Satcom BW satellites will provide services over a region stretching from the Americas to Eastern Asia.

Pascale Sourisse, president and CEO of Alcatel Alenia Space, said his company was strongly involved in the bid right from the beginning, together with EADS Astrium.

DirecTV-Liberty Media Deal Still Many Weeks Away

LOS ANGELES, CA – A proposed deal involving Rupert Murdoch's sale of New Corp's 38 percent stake in DirecTV to Liberty Media, which is controlled by fellow billionaire media mogul John Malone is still weeks and weeks away, according to an executive familiar with the talks.

Reports say the timing of the reports on the talks seems to be dictated by the approach of the Oct. 20 News Corp. shareholders meeting, where one of the items on the agenda is a vote to renew poison pill provisions adopted last year to block Liberty and Malone from making a run at the company. The unnamed executive said there are a lot of complicated terms that have to be worked out.

Under the deal that is still in the works, in return for the News Corp's stakes, Malone would sell his 19 percent stake in the voting shares of News Corp., letting Murdoch's company buy back the shares. The deal, if consummated, could be worth well over $10 billion. News Corp. has a market cap of $74 billion, and a 19 percent stake of the publicly traded stock would be worth $14 billion. DirecTV has a market cap of $22.8 billion giving the News Corp. stake a current market value of about $8.7 billion.

Susan Kalla, an independent media and telecom analyst, says DirecTV's sales of $12.2 billion last year could be a basis for

setting a price for the DirecTV stake. She pegs the price at around one-and-a-half times revenue but not much higher.

The proposed sale is once again shaking the satellite, Internet and media industry. Barely three years after Murdoch acquired a 34 percent stake in Hughes Electronics, operator of the largest American satellite TV system DirecTV from General Motors for $6 billion, now he wants out apparently to remake his media empire in a digital and Internet marketplace governed by new rules.

The reason for the proposed sale is big media companies feel they no longer need even TV to watch TV programs anymore. Anyone with a computer and a broadband connection, including Apple's new iPod, can watch full length videos.

Boeing Receives $278-M NASA Payload Processing Option

ST. LOUIS – The Boeing heckout, Assembly and Payload Processing Services (CAPPS) contract has been extended for three years by NASA's Kennedy Space Center.

Valued at $278.5 million, the contract extension and modification covers Oct. 1, 2006, through Sept. 30, 2009, according to NASA. The total contract value including exercised and unexercised options is approximately $846 million.

Mark Jager, Boeing Florida Operations CAPPS program manager, said, "The International Space Station (ISS) elements and robotic vehicles we will process during the contract term will serve our nation and the world community for years."

To date, the CAPPS team has processed more than 404,000 pounds of on-orbit ISS spaceflight hardware. This represents almost half of the space station's eventual 925,000 pounds of hardware that will fly in space when NASA completes assembly in 2010. During the next three years, the CAPPS team will process numerous ISS payloads, including the P5 truss segment for NASA's next shuttle mission, STS-116, and international segments, including the Italian Columbus Module and the Japanese Experiment Module.

The contract is a performance-based, cost-plus-award-fee contract to provide checkout, assembly and payload processing services at Kennedy Space Center, Fla., Cape Canaveral Air Force Station, Fla., and Vandenberg Air Force Base, Calif. Under the contract, Boeing provides management and technical support of payload processing for the space shuttle, ISS and expendable launch vehicle programs. Services and support include the planning for and receiving of payloads, maintenance of associated ground support systems, integration of payloads with the space s[SM]e, launch support and space shuttle post-landing payload activities.

EXECUTIVE MOVES

New Skies' Daniel S. Goldberg Moves to Telesat as President and CEO

Dan Goldberg

OTTAWA, Ontario — Telesat Canada and its shareholder BCE Inc. has named Daniel S. Goldberg as its president and CEO. Goldberg, formerly president and CEO of SES New Skies, succeeds Larry Boisvert who has decided to retire after nearly 34 years of service, the last 13 years as president and CEO.

Goldberg, a graduate of the Harvard Law School, has been working in the communications sector for the past 15 years and in satellite operating companies since 1998, most recently at New Skies - an owner operator of a global satellite communications network that provides satellite capacity and other services for the transmission of video, data, internet and voice services to corporate and government entities around the world.

During his tenure at New Skies, Goldberg led a team that took a small start-up created through the partial privatization of an intergovernmental satellite system and built a pre-eminent global player in a highly competitive industry. He also helped launch two successful Initial Public Offerings (IPOs) and concluded two private sales between 2000 and 2006.

Boisvert will remain a senior advisor at Telesat, on loan to BCE for the upcoming months.

EchoStar Names New President, CFO; Vogel, Han and Rayner to Assume New Duties

ENGLEWOOD, Colo. — EchoStar Communications Corporation has appointed Carl Vogel as president, overseeing day-to-day operations for Dish Network. Vogel will continue to serve as vice chairman of EchoStar's board of directors.

The company also announced the appointment of Bernard L. Han as chief financial officer, effective September 28, 2006, succeeding David J. Rayner who will assume the new role of executive vice president in charge of the Company's national installation and service network.

Vogel has most recently focused on the company's financial and strategic initiatives, and will retain responsibility for them. He returned to EchoStar in May, 2005 after serving as president and chief executive officer of Charter Communications. Before joining Charter, Vogel held various senior executive positions with companies affiliated with Liberty Media Corporation and was responsible for portfolio investments in subscription television, content distribution, broadband, telecommunications and satellite sectors worldwide.

He was also chairman and CEO of Primestar and CEO of StarChoice until each company was sold or merged with other satellite operators. Vogel served as EchoStar's president from 1994 to 1997, and was a key member of the executive team that created and launched DISH Network in 1996.

Marshall Byrd Succeeds Ted Gavrilis as Head of Lockheed Martin Commercial Space Systems

NEWTOWN, Pa. – Lockheed Martin has named Marshall Byrd as vice president and general manager of its Commercial Space Systems line of business, effective September 1. Byrd succeeds Ted Gavrilis, who is retiring after 36 years at Lockheed Martin.

Byrd currently serves as vice president and general manager of Lockheed Martin Michoud Operations in New Orleans. The facility is the focus of External Tank design and production operations for NASA's Space Shuttle program. He joined the company in 1978 and has served in a series of progressively responsible positions focusing on plant and production operations, manufacturing and supply chain management.

Gavrilis has led Commercial Space Systems since 2000, providing executive leadership for the marketing, design, development, production and on-orbit delivery of satellites and related systems for commercial and government customers worldwide. He joined Lockheed Martin in 1970 as a design engineer and rose through a series of senior positions in engineering and management.

The Pennsylvania-based Commercial Space Systems builds upon the expertise of several heritage Lockheed Martin companies and has manufactured, launched, deployed and maintained more space platforms than any other company.

EXECUTIVE MOVES

Orbital Executive Promotions: G. David Low, Gregg Burgess, John Pullen and Sally Richardson to Assume New Roles

DULLES, Va. — Orbital Sciences Corporation has promoted four of its executives to new positions within the company.

G. David Low, currently vice president and head of the company's Technical Services Division (TSD), is being promoted to senior vice president and program manager for the Commercial Orbital Transportation Services (COTS) program. Replacing Low at the helm of TSD will be John Pullen, an 18-year veteran of the division. Gregg Burgess, program manager of Orbital's MiTEx satellite program, is being advanced to vice president of Special Programs, and Sally Richardson, who most recently served in the company's Advanced Programs Group, is being promoted to the position of vice president and deputy director of Technical Operations, overseeing the engineering activities at the company's facilities in the Eastern United States.

Low has been with Orbital for 10 years and has served in various roles with the company, including leading the Launch Systems Group's successful ISO certification effort and its quality and mission assurance function. Most recently, he headed Orbital's TSD, which provides engineering services and subsystem design and manufacturing to U.S. government customers. In his new role, Low will oversee the company's development, manufacturing, testing and operational activities related to Rocketplane Kistler's (RpK) K-1 reusable launch vehicle, which was recently selected by NASA for the COTS award. Orbital is RpK's primary industrial partner on the COTS program.

EXECUTIVE MOVES

Burgess is assuming the leadership of the Special Programs business area in Orbital's Advanced Programs Group. The Special Programs business area specializes in developing new space-based capabilities using advanced technologies on aggressive schedules to meet emerging national security space mission requirements. In this capacity, he will be assuring the continued success of ongoing programs and expanding Orbital's business base in this area. Mr. Burgess is transitioning from his role as Program Manager of the MiTEx satellite program, which Orbital designed and built for the Defense Advance Research Projects Agency (DARPA), a position he has held for the last three years. Mr. Burgess' 14 years at Orbital has spanned technical, business development and program management roles in aircraft, space transportation and satellite systems.

Pullen has been with Orbital for the past 18 years at TSD. For the past two years, he has acted as Low's deputy head of the division, which is based in Greenbelt, MD. He is a trained electrical engineer with broad familiarity with the company's current customers and of the overall market for TSD's services. Jack Danko, who, until recently, was head of the Space Systems Group, Orbital's largest business unit, will serve as an advisor to Pullen on a part-time basis.

Iridium Satellite Names Matthew J. Desch as New CEO

Matthew J. Desch

BETHESDA, Md. — Iridium Satellite LLC has named Matthew J. Desch, 48, as chairman and chief executive officer of the company, replacing Dan Colussy as chairman.

Colussy said that Desch will replace him as CEO of Iridium Satellite. Desch will become CEO of Iridium Holdings, the parent of Iridium Satellite, while Colussy will remain chairman of Iridium Holdings.

Desch was most recently CEO of New Jersey-based Telcordia Technologies, Inc., a supplier of software and services to the telecommunications industry. Desch was instrumental in moving Telcordia into new wireless and international markets, and spinning off the company to private equity from SAIC, Inc.

Prior to Telcordia, Desch spent 13 years at Nortel Networks, leaving in 2000 as President, Global Service Providers and responsible for Nortel's business in Europe and Asia. SM

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SES Astra to Launch Astra2Connect Broadband Internet

BETZDORF, Luxembourg — SES Astra, an SES Global company, will launch Astra2Connect, a fully satellite-based interactive and low-cost broadband internet access to serve the residential market, the small and home offices as well as small and medium enterprises.

SES Astra said Astra2Connect will provide a full satellite-based "triple play" infrastructure service enabling broadband internet access, voice-over-IP and other content related access services such as IPTV or Video-on-Demand. It is expected to be operational in the first quarter of 2007 and will mainly target homes in Europe, which can not easily get terrestrial broadband internet services.

Ferdinand Kayser, president and CEO of SES Astra, said Astra2Connect is a great innovation that brings broadband internet access to everyone. He said the end-consumers will benefit from an affordable and always-on two-way connectivity.

Astra2Connect is currently offered on a wholesale basis to large European service providers such as telecommunication operators, internet service providers and broadband operators that conduct pro-active marketing and sales activities in the residential and small enterprise markets.

The necessary equipment consists of an interactive satellite antenna as well as a low-cost and easy-to-install satellite modem. For the design and procurement of the satellite platform and the related modems, SES Astra has entered into a cooperation with Newtec, a recognized market leader in satellite communication systems. Astra 2Connect uses advanced technology developed with the support of the European Space Agency (ESA).

Lockheed Martin Instrument Suite o Study Dynamic Solar Activity on New International Sun Mission

PALO ALTO, Calif. — A suite of instruments called the Focal Plane Package (FPP) — designed and built at the Solar and Astrophysics Laboratory of the Lockheed Martin Advanced Technology Center (ATC) in Palo Alto — is scheduled for launch on the Solar-B satellite from the Uchinoura Space Center, Kagoshima, Japan on Sept. 23, 2006.

Lockheed said the primary scientific goal of the Solar-B mission is to observe how changes in the magnetic field at the Sun's surface propagate through the different higher layers of the solar atmosphere.

Solar-B is an international cooperative mission between NASA, the Japanese Aerospace Exploration Agency (JAXA), the Particle Physics and Astronomy Research Council of the United Kingdom, and the European Space Agency. It is the second mission in the Solar Terrestrial Probes Program within the Heliophysics Division of NASA's Science Mission Directorate, and follow-on to the successful Solar-A (or Yohkoh) mission, for which Lockheed Martin provided the Soft X-ray Telescope.

The FPP comprises four distinct sub-systems — a broadband filter imager (BFI), a narrowband filter imager, a spectra-polarimeter and a correlation tracker to stabilize the images — and resides on the Solar Optical Telescope (SOT) whose mirror and structure were designed and developed by the National Astronomical Observatory of Japan and Mitsubishi Electronics Company. The SOT is the largest solar optical telescope ever to be flown in space and will be able to resolve features on the surface of the Sun just 90 mi. (150 km) across.

Solar-B will perform coordinated measurements of the different layers of the solar atmosphere from a Sun-synchronous orbit around the Earth. Three instruments will perform these measurements, the previously mentioned SOT, an Extreme Ultraviolet Imaging Spectrometer and an X-Ray Telescope.

These instruments will measure the Sun's magnetic field in the photosphere and the ultraviolet and X-ray radiation, emitted by the transition region/low corona, and the upper corona. Scientists will use the data obtained to gain a more precise understanding of the sources and mechanisms of the Sun's variability.

Dish Network Launches Broadband Internet Options

ENGLEWOOD, Colo. — EchoStar Communications Corporation and its DISH Network satellite TV service announced on Thursday that consumers now have the option to sign up for DSL high-speed Internet service while choosing their Dish Network programming.

EchoStar said the functionality is made possible by technology from GetConnected, Inc., a point-of-sale platform that searches

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for current offers available from high-speed Internet service providers based on a customer's home address and telephone number. Where available, customers can select and purchase DSL high-speed Internet service at the most current prices in the marketplace from well-known and trusted brands.

EchoStar joins a comprehensive list of retailers, major DSL service providers, and Internet service providers that use GetConnected to offer a combination of video and data services.

NGA Buys Entire Suite of Digital Globe CitySphere Product

LONGMONT, Colo. ¯ The National Geospatial-Intelligence Agency (NGA) has purchased DigitalGlobe's CitySphere product to access imagery of 200 of the world's major metropolitan areas. CitySphere is an off-the-shelf collection of orthorectified color imagery provided by DigitalGlobe's QuickBird satellite.

"CitySphere demonstrates DigitalGlobe's ability to deliver innovative products and services that meet both commercial and defense and intelligence needs," said Jill Smith, chief executive officer of DigitalGlobe. "The currency, resolution and accuracy of CitySphere make it ideal for use as a base map in geospatial applications and we are delighted that the NGA has chosen CitySphere for its needs."

CitySphere features orthorectified 60 cm (2 foot) mosaic color imagery of 200 of the world's largest cities. Cities such as Beijing, China; San Francisco, California; Rio de Janeiro, Brazil; and Rome, Italy are available off-the-shelf with immediate delivery. Each city is comprised of imagery that is refreshed every year, so that no content is older than 24 months.

DigalGlobe said that CitySphere can meet the geospatial content needs associated with embassy security, convoy and route planning security operations, the location of new property compounds, and the development of evacuation plans.

DitigitalGlobe's CitySphere product provides accurate geospatial data that aids customers in providing timely and relevant geospatial intelligence in support of worldwide mapping requirements. CitySphere enables easy access to a consistent, reliable source of unclassified high-resolution imagery that is a foundation for planning, decision and action.

Blue Sky Offers Satcom Solution for Existing MagnaStar Users

LA JOLLA, Calif. — Blue Sky Network (BSN), a global logistics solution provider for two-way linking and managing transportation assets via satellite, has announced its plan to offer existing MagnaStar customers special pricing on BSN Iridium satellite communication solutions to minimize downtime.

Recently, Verizon announced that its MagnaStar Airfone service will terminate in December, leaving 4,000 customers without an airborne communications path. BSN said it will offer all of these MagnaStar customers a discount for converting to BSN Iridium based equipment and service before the end of the year — helping them to ease their burden from having to change services.

The BSN satellite voice and data solutions for aviation include a variety of options for portable and fixed installations. BSN equipment has also been certified by Rockwell Collins for use with the Airshow 4000.

Blue Sky said it has developed innovative communication packages to fill the specific needs for a variety of aviation customers. The lightweight, easy to use equipment is ideal for aircraft, and the reliable Iridium global service is available anytime, anywhere on Earth.

IDC Unveils New Hybrid DVB-S & DVB-S2 Products for IPTV, HDTV and Digital Cinema

OTTAWA — International Datacasting Corporation has unveiled its next-generation of hybrid DVB-S & DVB-S2 product suite with MPEG-4 AVC and MPEG-4 HE-AAC for high speed distribution for IPTV, HDTV, Digital Cinema and enhanced IP services.

The new product suite is part of IDC's new SuperFlex™ SFX3101 series—featuring IDC's Pro Audio and Pro Video product lines that consist of new satellite receivers, routers and integrated Datacast XD™ file and stream Content Distribution and Management software.

IDC said DVB-S and DVB-S2 product series is a high performance end-to-end audio solution that is ideal for demanding broadband applications such as; IPTV, Digital Cinema, MPEG-4/

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H.264 HDTV distribution, file distribution for syndicated television applications and more.

Gary Carter, VP and chief technology officer, said the SuperFlex™ SFX3101 series includes built in product features and functionality that will improve overall network performance while significantly reducing operating costs.

IDC said with the recent increase and demand for HD content capabilities, the company's launch of the product suite will now offer the combined benefits of MPEG-4 Advanced Video Codec (AVC) and DVB-S2 for cost-saving satellite transmission rates using reduced bandwidth capacity and drastically cutting operating costs by close to 50%.

Blue Sky Launches Two-Way Satellite Tracking Solutions

LA JOLLA, Calif — Blue Sky Network, the global logistics solution provider for two-way linking and managing transportation assets via satellite, has announced its compact Iridium satellite terminals, the D2000M/MD, for land vehicles and marine vessels.

The GPS tracking system offers customers two-way communications, and instant web-based tracking and position reporting for fleets of trucks and marine vessels that can be located anywhere in the world.

Building on the strengths of its aircraft flight tracking solutions, the D2000M/MD utilizes a next-generation technology from Iridium, allowing a much smaller form factor and more competitive pricing than previously available. The satellite asset tracking unit is the size of a car stereo and can be easily installed on a land vehicle or marine vessel for instant, global two-way text messaging communications.

Working seamlessly with Blue Sky Network's SkyRouter, an interactive fleet management Web portal, the D2000M/MD allows land vehicle or marine vessel fleet managers to enjoy the safety and convenience of global satellite tracking for all of their transportation assets — even in the most remote locations.

In addition, dispatch or other parties may send free form two-way text messages via SkyRouter's fleet management interface directly to the land vehicle or vessel. The D2000M/MD integrates with third party resource allocation or dispatch software. It also features a "quick position" switch to allow for emergency notification.

Integrasys Releases Next Generation of Low-cost VSAT Line-up Tool Based on Satmotion Technology

AMSTERDAM — Integrasys S.A. has unveiled a new Satmotion Pocket VSAT pointing & line-up tool based on the idea of providing to the installer the spectrum information of the continuous wave (CW) carrier used to line-up as received by the network operations center (NOC).

Integrasys said calibrated EIRP for polar and cross-polar CW signals along with target values are received by the satellite terminal and displayed on the installer laptop or PDA while fine tuning the antenna pointing to meet the specific performance required by the satellite operator.

For initial antenna pointing and satellite identification, Satmotion displays on the PDA a real-time measurement of the S/N of the forward link which ensures that the right satellite and service are being received by the terminal. This added new feature may prevent the installer to carry with a traditional field strength meter or portable spectrum analyzer.

VSAT IDU and installer PDA or laptop communicate using a wireless connection, so the installer can be present at the antenna site to perform pointing operations while setting up the transmission power levels in the terminal IDU and maximize its transmission cross-pol isolation.

The system supports DVB-RCS and other satellite broadband interactive terminals including those manufactured by Viasat (LinkStar and SurfBeam), NERA and EMS Technologies, according to Integrasys.

Satmotion system is currently being operated by Eutelsat, Hispasat and the European Space Agency through the Hellas-

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Sat satellite.

Integrasys is a member of SatLabs Group EEIG formed by service providers, satellite operators, system integrators, terminal manufacturers and technology providers with a commercial interest in DVB-RCS. The object of the Satlabs Group EEIG is to bring the deployment of the DVB-RCS standard to a large-scale adoption, by ensuring interoperability between DVB-RCS terminals and systems and by achieving low-cost solutions.

Swe-Dish Partners with Envivio to Offer MPEG-4 Video

AMSTERDAM — Envivio Inc., a technology provider of IP-based MPEG-4 video solutions for telcos and broadcasters, and Swe-Dish Satellite Systems AB have teamed to provide IP broadband and broadcast quality MPEG-4 video. The solution bundles Swe-Dish IPT Suitcase with the Envivio 4Caster™ B3 MPEG-4 AVC/H.264 encoder to offer a compact and quick-to-air MPEG-4 video enabled small satellite terminal.

With easy, one person operation, the IPT Suitcase with 4Caster B3 solution offers up to 4 Mbps IP broadband transmission along with high quality MPEG-4 video at lowest possible bit rate from anywhere in the world and it is ideal for news organizations, military units, government agencies and rescue organizations operating in remote locations, according to Swe-Dish. They said the system also offers an easy upgrade path for existing IPT Suitcase users to support MPEG-4 video capabilities. SM

COVER STORY

The Ground Equipment Market

by Virgil Labrador
Managing Editor, SatMagazine

As with the rest of the satellite industry, the ground equipment segment of the market grew 11 percent in 2005 over the previous year, according to the annual State of the Industry Report published by the Washington, D.C.-based Satellite Industry Association (SIA). According to the report, earth station and other major equipment revenues experienced a rebound, growing some 10 percent compared to only two percent growth in 2003-04. The biggest driver of the growth in satellite ground equipment revenue is end-use equipment, particularly for key consumer services such as satellite radio and direct braoadcasting services (DBS), according to the report.

You can probably add to that list the growth in consumer broadband services and IPTV, which many see as driving the demand for equipment in the next few years. With the launch of a new generation of Ka-band satellite broadband services, Wildblue in North America, strong performance by HNS' DIRECWAY service, and successful orbiting of the Thaicom-4/iPSTAR-1 satellite and launch of their broadband service,, and the announced launch of Astra2Connect broadband internet service by SES Astra in Europe, there is no dearth of initiatives that will be generatinmg demand for satellite ground equipoment from the consumer and small home office (SOHO) markets. Research firm NSR estimates the satellite broadband industry generated nearly US$2.7 billion in 2005 from an installed base of 1.01 million IP VSAT sites and satellite broadband subscribers.

Demand for compact terminals that can be set-up easily and quickly is increasing such as the ND SatCom *Sky*RAY Compact series, one of thelatest generation of aerodynamic SNG antenna subsystems on the market. (image from ND SATCOM)

Industry consultant and SatMagazine columnist Bruce Elbert said that he sees two two types of ground equipment in high demand: (1) compact terminals that can be set up quickly and auto-acquire the satellite. As the prices of these terminal come down, the demand should grow rapidly. And, (2) fixed VSATs used for Internet access and broadband services.

"While the US, European and Japanese markets are pretty saturated as far as broadband is concerned, the regions where satellite-based products are needed and wanted are Latin America, Africa and parts of Asia and the Pacific. Low prices and good bandwidth capabilities are what these markets are looking for. The satellite operators will hopefully support this growth by deploying their new Ku band satellites to serve these areas," said Elbert.

Elbert also sees the potential in IP-based applications like Internet Access, *VoIP*, video conferencing using the H.323 protocol, and content distribution in retail. "There are more requirements now for mobile installations in vehicles and boats; commercial aircraft usage is still a questionmark after Boeing's decision to close down Connexion. In general, users who find themselves in lesser developed and remote areas expect to have the same broadband access that they enjoy in major cities. This propels the demand for affordable equipment that meets this need," he added. Ohter applications that could potentially drive ground equipment demand include:

Emergency and Disaster Communications

With the spate of major natural disasters recently, there is more awareness of the need to prepare for emergencies. At a press briefing in Coral Gables, FL on July 31, David Paulison, Director of the Federal Emergency Management Agency (FEMA) said that one of his organization's objectives in this hurricane season was to purchase more satellite equipment in order to better communications capabilities, improve supply shipments and increase situational awareness during the hurricane season. Paulison stated one of the first tasks his organization is trying to perform better this hurricane season is to improve communications between federal departments, state agencies and local governments to more efficiently assist the affected populations. One of the pieces FEMA claims it missed last year was providing enough satellite equipment.

The second aspect mentioned was logistics to prevent losing goods in transit, which required FEMA to purchase a $20 million satellite-based system for its 800+ supply trailers that will relay their position on the way to disaster relief sites. Finally, he told journalists that FEMA had purchased a satellite-based video

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streaming system so as to improve its "situational awareness" of the extent of the disaster instead of relying on newscasts.

Business Continuity via Satellite

Key business sectors are increasing their planning for business continuity solutions to counter the various threats and ensure mission-critical data transmission is enabled at all times, according to NSR.

Among these critical sectors are banking and financial services, oil and gas refineries, retail stores, telecommunications providers (including ISPs and telcos), shipping companies and manufacturing plants. "The satellite industry has been an important contributor to this emerging market and is helping a small set of customers in these key fields of activity to increase the reliability and availability of their networks and ensure back-up connectivity with partners, customers and remote sites. With the increase in use of IP-over-satellite, operators and resellers, as well as equipment vendors, take advantage of a large installed base of VSAT networks to offer optional emergency backup solutions.," according to NSR.

Mobile Broadcast Services

Mobile broadcasting is expected to rapidly become the model of choice for distribution of live television and movies to mobile devices in the United States, and by the end of 2007 approximately four million subscribers will receive entertainment and information on their wireless handsets via mobile broadcast technologies such as DVB-H and MediaFLO, accoding to ABI Research.

A recent ABI Research study, "Broadcast and Unicast Mobile TV Services" forecasts that in 2011, mobile TV services will have some 514 million subscribers worldwide. Of that total, the research indicates, 460 million will be subscribers to broadcast services. Broadcast services will have 1.5 million subscribers by the end of 2006. In the US market, most subscribers will be enabled by the wireless carriers' broadcast network partners, including MediaFLO (a subsidiary of Qualcomm), Aloha's Hiwire network, and Crown Castle's Modeo service.

Demand for GPS Satellite Receivers

Over 40 million Global Navigation Satellite Systems (GNSS) receivers were shipped in 2005, but in 2011 the market will have grown to nearly 300 million shipments, according to a new study from ABI Research that tracks GNSS markets across eleven vertical industry segments.

That growth will not occur evenly across the board. In 2005, in-

vehicle navigation systems accounted for just 26 percent of the total shipments, but 34 percent of worldwide GNSS hardware revenues. In 2011, in contrast, in-vehicle navigation shipments will represent just 16 percent of the total market, but will still deliver 29 percent of the hardware revenue, according to ABI Research.

Much of that added growth will come from the mass uptake of GNSS services by the majority of the world's mobile subscribers who use GSM handsets. As that trend develops, the fastest regional growth, which until now has been seen in North America and parts of Asia, will shift to Europe.
While communications will be the standout, and portable navigation—buoyed by falling prices and a flood of new offerings—will remain a strong and popular application, other sectors will show more modest gains. Garmin, TomTom, Magellan, Thales, Trimble, and more specialized GNSS vendors such as Rockwell Collins, Leica, and Honeywell will see a variety of expanding opportunities, ABI said.

"Military applications will increase," saysABI's Frank Viquez, "especially driven by the US military's aggressive push to equip not just vehicles but individual soldiers with GPS. Civil aviation will see some growth due to the increasing popularity of regional commuter and executive jets. The deployment of the European Galileo GNSS satellites will boost mapping and surveying applications as well: the more satellites in the sky, the greater the availability of the signal, and the more accurate the location data it provides," he added.

Direct-to-Home Services

IMS Research has predicted that worldwide shipments of digital cable and DTH set-top boxes will increase by 15 percent over the next five years, approaching 74.8 million units by the end of 2010.

In a recently published update to its online Television Database, IMS Research said as manufacturers race to incorporate the latest digital technologies for pay-TV, worldwide shipments of digital set-top boxes will grow substantially through the end of the decade. According to analyst Mark Meza of IMS Research, the desire for increased functionality and utilization of interactive services offered by cable and satellite providers will fuel demand for set-top boxes that feature DVR capabilities and advanced compression technologies like MPEG-4/H.264. "As the number of high-definition channels offered in programming packages increases, the need for advanced HD set-top boxes will further affect demand," he said.Interestingly, increased digital service offerings, and the capability to use them, depend largely upon the operator's ability to reduce the cost of the set-top box to the consumer. "In an effort to increase consumer access to new compression technologies and high-definition content that involves costly decoders, operators will look for ways to provide set-top boxes that the average consumer can afford," Meza said. Lease-only equipment programs and downloadable conditional access systems are just a few of the ideas on operators' cost-cutting horizons, IMS Research said.

Digital Satellite Radio

Worldwide, the combined market of both digital satellite and terrestrial radio will grow from approximately 5 million unit shipments in 2004 to 22 million unit shipments in 2009, predicts In-Stat.

The primary drivers for this growth will be new and compelling content, data services, price erosion for digital radio receivers, and digital radio provider partnerships with new car manufacturers, the high-tech market research firm said.

"In the U.S., satellite radio is driving the digital radio market," said Stephanie Guza, In-Stat analyst. "In other markets, most notably in the U.K., terrestrial digital audio broadcasting is driving it. The launch of Digital Multimedia Broadcast (DMB) services in Japan and Korea, along with increased promotional activity in Singapore, Australia and Taiwan over the next year, will drive digital radio shipments in Asia."

Conclusion

There is certainly enough possible sources of future growth in the equipment market with new applications and consumer services taking off in the next few years. Obviously not all will eventually pan out, but it is definitely better to have more eggs in your basket than none at all. SM

Virgil Labrador is Managing Editor of SatMagazine and is responsible for all editorial activitis of Satnews Publishers worldwide. He is co-author of the book, *Heavens Filled With Commerce: A Brief History of the Commercial Satellite Industry*. He can be reached at: virgil@satnews.com

FEATURE

IBC, the Greatest Show on Earth?

By Chris Forrester

Amsterdam's giant IBC broadcasting show seemingly gets bigger every year. This year's event attracted a thumping 45,000 visitors, up 5% on 2005. Now it is fair to admit that this seems puny when compared to NAB's massive 100,000+ visitors, but IBC's organisers talk about quality beating quantity and about the true international nature of the Dutch show. But setting aside such trite comparisons there were some discernable trends in evidence at the show, and talked about during the conference sessions.

Top of this list was IPTV, which seems to have hit something of a brick wall in Europe. Growth has stalled to such an extent that a major technology supplier, Tandberg Television, had to issue a profits warning just hours ahead of the show. CEO Eric Cooney summed up the situation in a statement, blaming "Late buying decisions", although he stressed he felt the longer-term view on IPTV remained wholly favourable, "We remain confident in the longer term outlook for the business driven by customer demand for high-definition, IPTV, video-on-demand and interactive advertising solutions."

Cooney admitted that many telcos – in the US as well a Europe – found programming for IP a challenge: "Today they are coming at the problem very differently, they know it is a business imperative for them and essential for their survival that they enter the world of video. It's a major motivator, having this fire at their heels and focuses the mind quite a bit in terms of answering 'what do we really need to do here?'"

Blake Krikorian, co-founder and CEO of Sling Media

Fritz Pleitgen, DG of German public broadcaster WDRNHK UHDV camera

Cooney wasn't the only major player bemoaning IPTV. "Some of the tier one telcos have been taking their time rolling out," Graeme Packman, principal consultant at Understanding & Solutions told a packed room at the 'IPTV - the future has arrived' session. "The slowdown is starting to undermine the credibility of the concept and this is undermining the confidence of content owners. Some of them are thinking 'Maybe we can do this ourselves through websites or other services rather than working with the telco guys who may not be as organised as we thought.'" IPTV subscribers will continue to grow from about 6.5m subscribers at the end of this year to nearly 37m by 2010, but there will be wild differences among countries depending on their competitive landscape, said Packman, who predicted it will be a "long time" before financial success comes to most IPTV rollouts. By 2010, he predicted IPTV revenues will be $4bn, or about 10% of total projected pay-TV revenues of $42bn.

However, if Tandberg had to suffer from a stalling of demand, they were hugely bullish on HDTV. Cooney's team showed their latest HDTV compression kit, perfect for satellite distribution using DVB/S2, and MPEG4 compression, which – says Cooney – can deliver high-def in a 6Mb/s bit stream (when used in a statistical multiplexer). "By and large today's accepted bit rate for Stat-Mux, advanced compression high def is between 8-10 Mbps. Before the end of the year we'll be down to 6 Mbps for high def and to be honest we are pretty impressed with the end result," said Cooney.

The IBC judges agreed, and at an Awards ceremony at the show Tandberg picked up two 'gongs', for its RX1290 multiformat professional receiver which won the award for best satellite contribution/distribution/transmission solution, while its zBand™ content delivery platform picked up the prize for best content-on-demand solution. The double success built on Tandberg's six nominations for the awards – the most for any company at this year's event.

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But Tandberg, like one or two other exhibitors and conference speakers, is also looking to the future and so-called 'next generation' compression. This is a wholly 'chicken and egg' situation that further compression (that is better than today's H.264/AVC MPEG4) depends on significantly improved computer processing, as well as footage specially shot with – at least – 4K cameras. Japan's NHK, as ever, is in the forefront of such technology and showed its 4000-line plasma to seemingly never-ending queues of visitors who all emerged eager to see more. Currently NHK is using a giant 76kg hand-built 4000 line camera to capture images, and even took the unit down to Antarctica last year to see how well the system fared in tough conditions. The camera captures IMAX-quality images, and indeed, this is where the technology might well end up, but some folks suggest that with the right technology advances in digital compression it could end up in our homes.

This 'next big thing' has already been dubbed Ultra High Definition (UHTV). Let's be clear this isn't going to happen tomorrow, but perhaps in the next 5-7 years or so, and the engineers are already looking at H.265 to provide the technical solutions. Their target – and it may be ambitious – is to trim 50% from the current MPEG4 bit-rates. But because 4000 line (or even 2000 line) images need massive amounts of data, this would still be a much fatter 'pipe' of data into the all-new set-top box, hence the wait for chip-sets that are significantly more powerful than those in use today. The NHK demo used a massive bank of computers to drive their display, but the end result was breathtaking and crammed a 32 megapixel display (some 16 times more than today's conventional 2 megapixel HD screens).

One highly regarded voice from the European Broadcasting Union, David Wood, argued that the human eye might not take kindly to this higher resolution format. Indeed, the demo seemed to confirm this, in that there was so much information on the display that one was truly amazed at the detail. Mr Wood suggests that we would find such detail distracting. What everyone seems to think is more likely, at least in the short term, is that the technology will make digitally projected cinema more realistic, and it's quite possible that NHK's brilliant invention might see use in sports stadiums, rock concerts and even museums and galleries all of whom would be able to afford the expensive computers.

NHK talks about Ultra-HD experimental broadcasts around 2015, with consumer equipment available around 2020 and full broadcasting around 2025. But it could be sooner. Us ordinary mortals might have to wait the 10 or 20 years predicted for the technology to appear in our local electrical retailer. But as Night follows Day, about 10 years from now, when the same electrical retailer has managed to persuade all of us to invest in flat screens then they'll be looking to the 'next big thing', and UHTV might well be the answer.

There was also at IBC a clear shift in emphasis on the HD front. To date most of Europe's high-def transmissions

SES Global's new toys

IBC saw the presentation of a 'product of the year' prize to SES Astra's BluCom technology, which links a set-top box to a mobile phone to enable improved return path connectivity for broadcasters. BluCom is already in use in Germany.

SES Astra also introduced at IBC a revamped return-path broadband-by-satellite product Astra2Connect, described by CEO Ferd Kayser as a fully satellite-based interactive and low-cost broadband Internet access to serve the residential market, SMEs and SoHo locations. Astra2Connect can provide a full satellite-based triple play infrastructure service enabling broadband internet access, voice-over-IP and other content related access services such as IPTV or Video-on-Demand. It is expected to be operational in the first quarter of 2007 and will mainly target homes in Europe and perhaps Africa.

Kayser said the technology, costing below •250 at "factory gate" prices would bring broadband Internet access to everyone - whenever and wherever they might be. "The end-consumers will benefit from an affordable and always-on two-way connectivity," he said. Astra would not themselves retail the service, leaving that to distributors who would add value in the form of marketing, sales and subscriber management. Customers could choose between three levels of service, each with direct return-path technology, at 256kbit/s downstream, 512 kbit/s, or 1024 kbit/s. Astra2Connect is not an open DVB-RCS standard.

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are coming from pay-TV broadcasters. The problem for Europe's important public broadcasters is one of cost. Most operate on very fixed licence fee income, and even those that can carry advertising are finding that the ad-market is soft, and not growing. Then there's the vexed question of bandwidth, and in Europe's crowded spectrum space there's not much spare capacity for greedy HD signals, not until analogue is switched off.

Fritz Pleitgen, DG of German public broadcaster WDR and also incoming president of the European Broadcasting Union, says he is personally convinced about the merits of high-def. "As a programme maker I wanted to try [the technology]. I can tell you I have become an addict. However, as the director general of a public broadcaster I am very anxious about the cost. There's no doubt the interest across Europe is considerable, especially for sport, drama and documentary production. But it all means extra investment, on bandwidth and transmission, on equipment and production, and even for the consumer. Not all broadcasters, with limited amounts of cash, can fund this exercise."

Pleitgen used a phrase that had been echoed around the hall more than once, saying that HDTV's adoption would be evolutionary more than revolutionary. "Step by step we can build up our programming archive and even this is a challenge for some public broadcasters."

Before we move on from high-def, one of the technology stars at the show was Grass Valley's impressive wireless HD camera (from G-V's Thomson camera unit), one of the very first in the business, and perfect for touchline action. HD viewers will have noticed that while stadium shots in HD are terrific, the touchline action cameras are usually Standard Def, that's then upconverted because sports regulators usually prohibit umbilically connected cameras to be sited near a game's action. That can now change, and the newly devel-

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oped HD camera can operate at distances up to 150 yards from the camera truck's antenna.

The IBC conference suites were packed, in some cases to overflow. One terrific session included Blake Krikorian, co-founder and CEO of Sling Media, who presented their Slingbox. He told delegates to IBC's 'Content that Moves Well' session that Sling's objective was simply allowing viewers to have content to their TV programming wherever they were in the world. "People love TV," he said. "And we are more and more looking at screens away from our living rooms. Mobiles, projectors, PCs and laptops, PDAs. We know that people want TV on all these devices wherever they are. We know that about 35% of Slingbox viewing is in the office. In fact destroying office productivity is another one of our goals!"

More seriously, Krikorian argued that Slingbox's existing 350,000 buyers are not under threat from Hollywood's studio lawyers. "We're only doing what cable did in the early years in the US, which was to move signals from a city out into the countryside. We're just a virtual cable company. Importantly, unlike the internet, we are just a one-to-one product, not one to many." Sling Media has licensed its product to Scandinavian satellite DTH operator ViaSat, and to a South American cable MSO. SM

London-based **Chris Forrester,** a well-known broadcasting journalist is the Editor for Europe, Middle East and Africa for SATMAGAZINE. He can be reached at chrisforrester@compuserve.com

FEATURE

APSCC Conference Highlight S-DMB Developments in Asia

By Bernardo Schneiderman

The APSCC 2006 Satellite Conference and Exhibition, which was held on September 26-28 in Seoul, Korea highlighted developments in the Asia-Pacific market. Attended by over 500 professionals from the satellite and space-related industries, the APSCC conference theme was "*Satellites - Growing with Asia*" which emphasized growing business opportunities in the region through a series of CEO roundtable discussions and panel discussions that provided essential tips and tools for doing business in the Asian market.

Also at this year's, APSCC Dr. Nongluck Phinaintisart was elected as the new APSCC President for a two-year term starting in January 2007. She succeeds Dr. Eui K. Koh, President of ASA Technologies, who has served as APSCC President for the past four years. Dr. Phinaintisart is currently President of Shin Satellite Public Co. Ltd., a satellite operator in Asia based in Thailand operating five satellites: Thaicom 1A, Thaicom 2, Thaicom 3, Thaicom 4 (IPSTAR), and Thaicom 5.

Among the key developments during the conference was the announcement of Shin Satellite's sales of User Terminals for its broadband satellite service reaching 50,000 in Asia-Pacific. IPSTAR Australia (IPA), a subsidiary of Shin Satellite, announced that it has achieved a deployment rate of 1,000 subscribers per month in Australia since August and is expecting to reach 2,000 new subscribers per month by the end of this year. This brings the total number of satellite user terminals provided by Shin Satellite to well over 50,000 in the Asia-Pacific region.

Another key announcement came from the Asia Broadcast Satellite (ABS) about the acquisition of Lockheed Martin Space Communications Ventures (LMSCV) and Lockheed Martin Intersputnik (LMI) from Lockheed Martin Global Telecommunications (LMGT). LMSCV owns and operates the LMI-1 satellite and LMI has the right to market the capacity on LMI-1. As a result of the transaction, LMSCV and LMI have been renamed Asia Broadcast Satellite Holdings and Asia Broadcast Satellite Ltd., respectively. The LMI-1 satellite has also been renamed ABS-1. ABS-1 offers coverage to Asia, Africa, Middle East and Eastern Europe with 28 C-band and 16 Ku-band transponders providing DTH and CATV distribution

User Terminal of S-DMB Service integrated in an NTT DoCoMo Mobile phone

Among the main topics that was discussed during the conference was the potential increase of the price per MHz for C-Band capacity by the satellite operators in the region. The price has been low comparing with the other major regional markets. Additionally the entering of new satellite operators in the region shows that the Asian market is still in the growth mode.

Among the new players are ProtoStar focuses on providing high-power geostationary satellite services optimized for direct-to-home (DTH) satellite television and broadband Internet accesses across the Asia-Pacific region. ProtoStar received a commitment for a US$ 40 million Series B round of financing from an impressive venture capital syndicate that together manages more than US$10.3 billion in committed capital.

Developments in S-DMB

Since last year, S-DMB has generated a lot of interest in the development of the Mobile Satellite Broadcasting Consortium's service. Based on the presentation of the two main operators of the services: TU Media (South Korea) and Mobile Broadcasting Corporation (Japan), the number of subscribers will reach over one million

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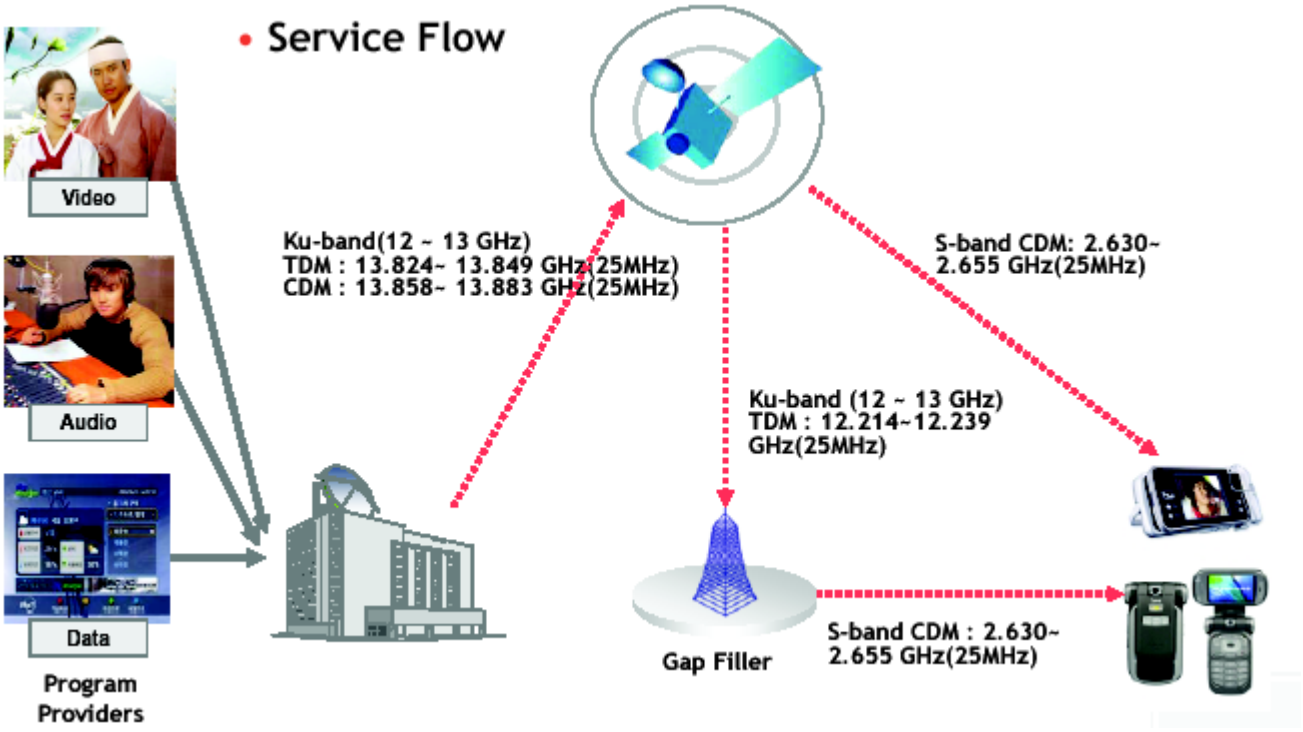
users by the end of 2006. Korea is ahead with 90% of the market share and Japan is reaching 10%. One of the key issues for the success in Korea was the marketing campaign very strong and the participation of the local mobile operator in the launch of new services. In Japan the efforts are more conservative in the marketing efforts and the local partner was not a mobile operator. Tu Media is forecasting that S-DMB will have 6.6 million subscribers at the end 2012 in Korea.



SchematicDiagram of the S-DMB service (courtesy of TU Media)

In the Korea market the client is receiving 12 video channels, 26 audio channels and data via Satellite direct to end user device. (or alternative via a Gap Filler) The transmission is in S-Band (2.63 – 2.65 GHz)

In Japan MBC is broadcasting eight Video channels, 37 Audio Channels and 60 titles with Data Content Programs. MBC additionally developed applications for Disaster Prevention and OMarine Information for Small Ships.

The interest in this program in Asia is growing in the global market where more than 110 companies from the Americas, European Union and Asia Pacific requested information about S-DMB, of which 22% was Mobile Operators, 18% Broadcasters and 12% Satellite Operators. SM

Bernardo Schneiderman has over 20 years of experience in satellite communications and is the President of Telematics Business consultants based in Irvine, CA. He has been working in Business Development, Sales and Marketing for Satellite Carriers, VSAT Equipment Manufacturer and Consulting Companies in the USA, Latin America, Brazil and Africa developing business for the Telecom, Broadcast and the Enterprise Market Segment. He was the editor of the Publication Brazil Telematics Newsletter from 1995-2003. He has a MBA from University of San Francisco with Major in Telecom and International Marketing and BSEE from UFRJ in Brazil. He can be contacted at bernardo@tbc-telematics.com

CASE STUDY

Leveraging Satellite Technology Boosts Employee Productivity for M.A. Mortenson

Background

M.A. Mortenson is a family-owned construction company founded in 1954. Headquartered in Minneapolis, Minnesota, Mortenson has been on *Engineering News Record's* list of the top 50 contractors since 1990. It operates nationwide as well as outside the USA on projects ranging from corporate office buildings and healthcare projects to network/data centers, sports venues and hotels. Mortenson also specializes in wind power construction projects. Many of these are built in locations far from anything resembling a broadband connection. At some, even mobile phone coverage is lacking. In a time sensitive business where scheduling delays can cost thousands of dollars, Mortenson's information technology department faces a continuing challenge: to keep projects moving by keeping employees in the loop.

Temporary Servers on the Job Site

After much experimentation, the department hit on a partial solution. "We would configure and ship a temporary server to each remote location," says Mark Calkins, Enterprise Systems Lead for Mortenson. "Then we arranged for satellite connectivity to link the servers to our network hub.

The link wasn't very good. It had a lot of latency. But it allowed us to replicate Lotus Notes and Expedition [a project management system] at the project site and refresh it every night." These and most of the company's other applications are delivered through Citrix.

The solution worked, but was far from ideal. "The project staff didn't like the fact that they couldn't work on project documents or view photos in real time," says Calkins. "We also couldn't give them access to Mortenson's corporate intranet due to latency." From the corporate point of view, lack of access on the job site translated into lost employee productivity. And the IT department spent an estimated 30-40 hours to set up a temporary server and a further 10 hours per week to maintain it – time that could have been devoted to much higher value work.

The breaking point came when the company decided to move to Oracle's eBusiness Suite for its primary enterprise applications. The high interactivity requirements of the system made it impossible to roll it out on temporary servers. Satellite remained the sole means to connect with truly remote locations – but there seemed to be no way that satellite could deliver the secure LAN-like service the company required.

LAN-Like Performance Via Satellite

By March 2006, however, Mortenson's IT department had nearly 30 users at three sites connected through a satellite-delivered VPN, using Citrix to provide real-time access to Oracle applications, the company intranet and the Internet.

What made it work? End II End Communication's unique OptimalHub software at the data center and OptimalEdge software at each remote site. Running on Intel-based servers, the software provides an optimized IPSec VPN that delivers maximum performance over satellite and terrestrial broadband. The Optimal suite makes it possible to run Citrix, SAP, Oracle and other highly interactive applications over satellite with LAN-like performance. It replaces multiple proprietary network devices, offers end-to-end AES 256 encryption from the data center to every remote site and provides unified management of all sites on the network. Yet

CASE STUDY

it can be installed by non-technical staff at remote sites without supervision.

"We needed something cost-effective and manageable," says Calkins. "We occasionally do not get much lead time for the start-up of a new site. And there's a lot of mobility in this company.

We're bringing sites up and taking them down all the time. The solution had to be something we could support and deliver on a consistent basis. End II End met the need."

Meeting the need meant more than selling software. End II End also provided logistical and technical support to enable rapid deployment, and Calkins "applauds the company's ability to work with us to resolve technical issues."

Windfarms and Military Bases

The first site equipped with End II End's software was on the side of a volcano in Kaheawa, Hawaii, where Mortenson was building a windfarm project. Next up was another windfarm in the wilds of Sault Ste. Marie, Canada. The third site was at the Ft. Leonard Wood military base in Missouri, where Mortenson was building a veterinary clinic.

Early in the evaluation period with End II End, Calkins' team tested the software against a Cisco 3002 router over a satellite link. They found that, when they had just one user on the remote end, the two devices worked about equally well. This came as no surprise, since one user had access to a surplus of bandwidth.

As they added users, however, the Cisco router's performance degraded so drastically as to be unusable. "It was due to the encryption overhead of the router," says Calkins. "We could improve the performance somewhat by lowering the encryption level, but who wants to make that kind of trade-off? With End II End, we could run at the maximum encryption setting with multiple users and still get great performance."

In addition to significant labor savings in the IT department, Calkins estimates that the End II End's solution, by making it possible to run all of the company's Citrix-based applications, is responsible for a 300% gain in employee productivity at the job sites. "For anybody who is using Citrix and has challenges like these," says Calkins, "End II End is an ideal solution." SM

Forthcoming Issues:

November 2006 Military Satellite Market

December 2006 Year in Review

January 2007 Telecom Market

February 2007 Space Tourism: What's in it for Satellites?

VITAL STATISTICS

Asia shows the lowest fill rate as a result of over-investment and fragmentation

Average satellite fill ratios as of YE 2005

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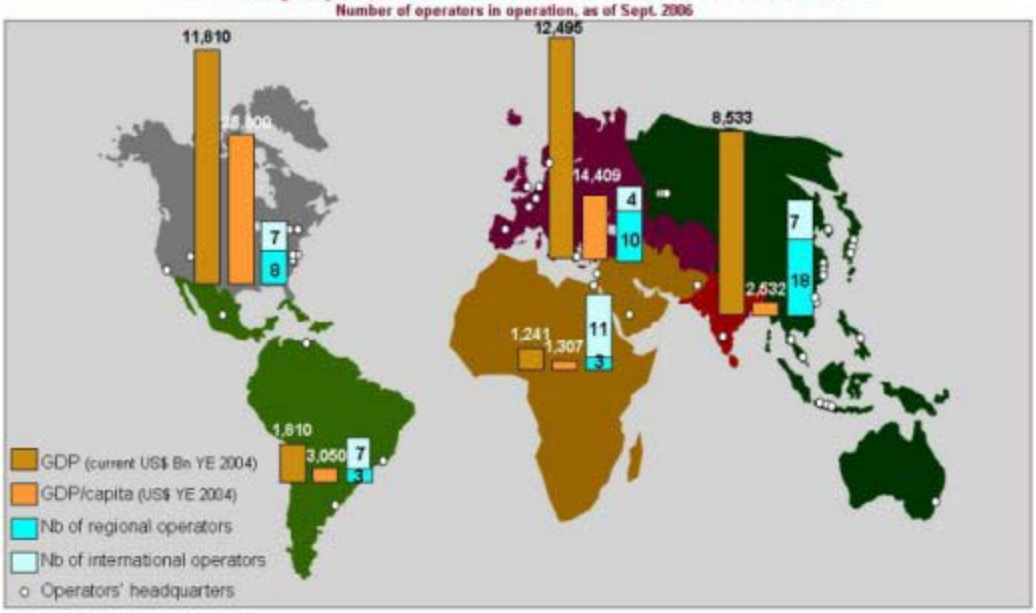
Too many operators for the current Asian wealth ?

Number of operators in operation, as of Sept. 2006



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About Aon Explorer

Aon Explorer is the strategy consulting arm of Aon France in the aerospace and telecoms markets. Resulting from the acquisition of Vista Advisers in January 2005, Aon Explorer Strategy & Finance has developed a thorough expertise in business plans, feasibility studies, companies due-diligence both for the satellite industry and the finance community. Please contact Laurence Journez, Vice President, tel: +33 1 5875 6064, email: laurence_journez@aon.fr

MARKET INTELLIGENCE

Satellite & Terrestrial:
Is C-band about to be the "Conflict-band"?

By Martin Jarrold,
Chief of International Program Development, GVF

The satellite industry is facing a major threat to its successful business operations worldwide, one that will overwhelmingly compromise its ability to serve the mission-critical communications requirements of its millions of customers on every continent, in every sector, across all vertical markets. If national and international government organizations fail to intervene effectively to limit this trend, the satellite industry may well be prevented from supplying Fixed (FSS) and Mobile Satellite Services (MSS) – in voice, data and video – in both developed and developing nations, everywhere.

Right now – in coordination with GVF – a wide range of satellite industry-related organizations around the world are developing initiatives to challenge this development, and subsequent Market Intelligence Reports will keep SatMagazine.com readers fully updated regarding these vitally important strategies.

The "Conflict-Band"

The 'extended' C-band frequencies – in the range 3.4 to 3.7 GHz – have already been identified by a number of national administrations for use by new terrestrial services such as Broadband Wireless Access (BWA) and WiMax. In addition, still more administrations are considering deployment of these new services in the 'standard' C-band – 3.7 to 4.2 GHz – frequency range. Already, in countries where WiMax services have been introduced, there have been significant in-band and out-of-band interference problems and service interruptions for satellite ground stations. According to David Hartshorn, Secretary General of the GVF, "such interruptions have been identified as having occurred across Africa, and in Australia, Bolivia, around the Caribbean, in China, Fiji, Hong Kong, Indonesia, and Russia."

In Hong Kong, the Office of the Telecommunications Authority (OFTA) issued a report earlier this year – entitled ***'Report of Working Group on Assessment of Potential Interference between Broadband Wireless Access Systems in the 3.4 – 3.6 GHz Band and the Fixed Satellite Services in the 3.4 – 4.2 GHz Band'*** (RSAC Paper 5/2006) – which concluded that without the implementation of technical constraints, principally geographic separation and the use of LNB filters – a very costly option for both BWA operators and FSS users – the deployment of BWA services in the 3.5 GHz band would lead to interference problems in the entire C-band (3.4 to 4.2 GHz), making a wide and cost-effective deployment of BWA systems in a restricted geography like that of Hong Kong very difficult.

And this is not all. In addition to BWA systems, C-band spectrum is being targeted for the deployment of terrestrial mobile services – IMT. The International Telecommunications Union ITU-R Working Party 8F, which is responsible for the terrestrial component of Agenda Item 1.4 – ***'Future Development of IMT-2000 and Systems Beyond IMT-2000'*** –

of the next World RadioCommunications Conference (WRC-2007), has included the 3.4 to 4.2 GHz frequency range as a potential candidate band for IMT.

Both BWA and IMT can be similarly characterized, in that both have large numbers of ubiquitously deployed base stations and user terminals. FSS satellite systems deliver extremely weak signals which are highly sensitive in both the standard and extended C-band ranges. The most effective solution to avoid interference problems from these services is to separate the systems by implementing exclusion zones around existing FSS earth stations. ITU-R (including Working Party 8F), together with several ITU studies within Working Parties 4A and 8F, have recognized the need for exclusion zones. However, these are essentially impractical in the case of ubiquitously deployed C-band antennas (as such zones cannot be defined) and for C-band antennas at known locations the width of such zones may go up several hundreds of kilometers, thus preventing the deployment of terrestrial IMT over very large areas. Furthermore, the implementation of

exclusion zones would negatively affect the ability of FSS operators to expand their operations beyond existing earth stations.

In Africa

Africa has always had a high profile in the programs of the GVF, and the arena of C-band interference will elevate this profile even further. The African continent is well served by Ku-band, but for large areas of the continent – where rain fade can be problematic, at least during the rainy season – satellite services delivered over C-band frequencies are absolutely essential. There are thousands of large satellite antennas across Africa that operate in the C-band frequency range, and thus, according to Matthew Botwin who chairs the GVF Regulatory Working Group, "It will be particularly important for the satellite community of Africa – operators, government regulators, and users of satellite services alike – to attend the next meeting of ITU Working Group 8F, in Cameroon in January 2007, where the 3.4 to 4.2 GHz frequency range will be under threat from the search for IMT2000 spectrum." Mr Botwin added, "The services using these satellite antennas would suffer interruptions of service and significant interference if the ITU allocates this band to IMT mobile services."

In Africa, as elsewhere, the C-band frequency range is the primary means by which the satellite industry provides millions of users with vital solutions for distance learning, telemedicine, universal access, disaster recovery, and numerous other applications.

Africa – along with Europe – comprises most of ITU Region 1. With Europe in favor of allocating 3.4 to 4.2 GHz to IMT, it is now doubly important that African communications regulators urge their foreign ministries to oppose this movement at the ITU, if they hope to protect C-band satellite services in Africa.

In Abuja, Nigeria, GVF will next be addressing this issue at the beginning of November 2006. Adjunct to the main program of the **West Africa Satellite Communications Summit**, 31 October to 2 November, GVF will host a meeting of the regional satellite community to establish a pre-Cameroon Working Group 8F dialog and plan of action. This regional meeting will be taking place on 1 November at the Summit venue (Le Meridien Hotel, Abuja), and further information may be obtained from **martin.jarrold@gvf.org**. Information about the Summit as a whole may be obtained at **www.gvf-events.org**.

Targeting a Global Solution

The agenda of the Abuja meeting will be premised on the GVF view of the interference problem. David Hartshorn describes it thus: "The only effective solution to protect satellite services in the extended and standard C-band frequencies is to separate them from terrestrial systems such as WiMax or BWA by several thousands of kilometers, or to find other spectrum for these services to operate."

And, in a paper entitled ***'Technical Analysis of the Potential for Interference from Terrestrial BWA Transmitters to FSS Receive Earth Stations in the Band 3.400 – 4.200MHz'***, proposed by a number of GVF members, and submitted to the CITEL PCC.II meeting in Lima, Peru, June 2006, it was concluded that "co-frequency operation of BWA systems and FSS receive earth stations in the same geographic area is not feasible." The paper has the support of a number of CITEL countries, and is likely to be included as CITEL input to the ITU WRC process.

In addition, and right now, GVF is urging its global membership to follow a six-point plan of action, as follows:

ONE: Register all receive-only and transmitting earth stations that operate in the extended and standard C-bands with the local telecommunications regulatory authority (TRA) wherever possible, so that they can be afforded the proper protection against interference.

TWO: Establish direct contact with the local TRA, and urge them to prevent the reassignment of C-band frequencies to BWA and WiMax services. Present each case by telling the plain and simple truth, that your business will suffer significant service disruptions if these terrestrial services are allowed to operate in the bands you are ALREADY using.

THREE: Urge TRA's to prevent the designation of the C-band frequencies as candidate bands for IMT services at WRC-2007, and contribute to this effect from the upcoming Conference Preparatory Meeting in February 2007. Explain that your business will suffer significant service disruptions if these terrestrial services are allowed to operate in the bands you are ALREADY using.

FOUR: Join the international effort to stop the reassignment of C-band to terrestrial services, particularly through such regional telecommunications organizations as CITEL in the Americas, the APT in Asia, CEPT in Europe, and the ATU in Africa, as well as the ITU in Geneva.

FIVE: Encourage national governments to participate in the aforementioned international efforts and to seek

protection for satellite businesses, whilst also participating in these meetings directly, representing the private sector.

SIX: Join with the efforts of the GVF, as it speaks for the global satellite services industry and conducts it advocacy on behalf of the spectrum rights of existing C-band users, and join the GVF Regulatory Working Group as well as the C-band Interference Task Group. SM

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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 towww.gvf.org

STOCK MONITOR

Company Name	Symbol	Price (Oct. 2)	52-wk Range
APT SATELLITE	ATS	1.30	1.12 - 2.10
ANDREW CORP	ANDW	9.20	7.08 - 14.25
ASIA SATELLITE TELECOMMUNICATIONS (ASIASAT)	SAT	16.25	15.91 - 19.60
BALL CORP	BLL	40.44	34.16 - 45.00
BOEING CO	BA	79.84	63.70 - 89.58
BRITISH SKY ADS	BSY	41.38	33.59 - 43.75
CALIFORNIAAMPLIFIER	CAMP	6.20	5.44 - 13.90
C-COM SATELLITE SYSTEMS INC	CMI.V	0.47	0.23 - 0.56
COM DEV INTL LTD	CDV.TO	6.18	1.67 - 6.22
COMTECH TELECOM	CMTL	33.99	25.67 - 45.65
THE DIRECTV GROUP	DTV	19.70	13.17 - 19.98
ECHOSTAR COMMUNICATIONS	DISH	32.66 -	24.44 - 35.95
GLOBECOMM SYS INC	GCOM	8.59	5.88 - 8.91
HARRIS CORP	HRS	43.49	36.72 - 49.78
HONEYWELL INTL INC	HON	41.44	32.68 - 44.48
INTL DATACASTING CORPORATION	IDC.TO	0.18	0.14 - 0.31
INTEGRAL SYSTEMS	ISYS	31.00	18.63 - 33.55
KVH INDUSTRIES INC	KVHI	12.94	8.77 - 13.60
L-3 COMM HLDGS INC	LLL	78.31	66.50 - 88.50
LOCKHEED MARTIN CORP	LMT	87.12	58.50 - 86.45
NEWS CORP	NWS	20.55	14.76 - 20.82
NORSAT INTL INC	NSATF.OB	0.43	0.30 - 1.19
NTL INCORPORATED	NTLI	26.02	19.99 - 31.00
ORBITAL SCIENCES CORP	ORB	18.32	10.86 - 20.36
PT PASIFIK SATEL IT	PSNRY.PK	0.0010	
QUALCOMM INC	QCOM	35.05	32.76 - 53.01
RADYNE CORPORATION	RADN	12.17	10.07 - 17.85
SIRIUS SATELLITE RADIO	SIRI	3.98	3.60 - 7.98
SES GLOBAL FDR	SDSFA.F	12.45	
TRIMBLE NAVIGATION	TRMB	46.17	26.64 - 52.40
WORLDSPACE INC	WRSP	3.38	1.90 - 15.37
VIASAT INC	VSAT	24.94	22.32 - 30.83
XM SATELLITE RADIO	XMSR	13.00	9.63 - 36.91

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