

APSCC Monthly e-Newsletter

JUNE 2019

The **Asia-Pacific Satellite Communications Council (APSCC) e-Newsletter** is produced on a monthly basis as part of APSCC's information services for members and professionals in the satellite industry. Subscribe to the APSCC monthly newsletter and be updated with the latest satellite industry news as well as APSCC activities! To renew your subscription, please visit www.apsccl.or.kr. To unsubscribe, send an email to info@apsccl.or.kr with a title "Unsubscribe."

News in this issue has been collected from May 1 to May 31.

INSIDE APSCC

Join APSCC Industry Briefing @ConnecTech Asia

June 18, Satcomm Hall, Lv1, Marina Bay Sands

APSCC will hold a Satellite Industry Briefing on 18th June at the ConnecTech Asia Satcomm hall. **Open to all exhibitors and visitors at the Satcomm hall**, APSCC will have this one day program focused on existing satellite trends, NewSpace in Asia and the WRC-19 campaign. Please join this interactive and energetic satellite program during ConnecTech Asia! For more information please visit <https://apsccl.or.kr/apsccl-industry-briefing/>

Satellite Track @ ConnecTechAsia 2019 Summit, June 19, Singapore, www.connectechasia.com/

ConnecTechAsia2019 Summit is the preferred conference in Asia for innovative sessions by technology's rising stars and thought-provoking conversations with fellow industry peers. This is your chance to be part of a connected ecosystem – think three packed days of inspiring keynotes, focused tracks and engagement sessions with decision makers, sectoral stakeholders and digital communities. A supercharged arena powered by strong thought leadership, the Summit is inspired by innovators and enablers, tech superstars and leading organisations at the forefront of digital disruption. Reimagine the entire business value chain and help shape tomorrow's digital societies at ConnecTechAsia2019 Summit! Enter the promo code 'CTACONF02' when registering and enjoy a 15% discount off all passes. [Register for the Summit](#) now!

Mark Your Calendar for APSCC 2019 on Nov 19 – 21 in Bangkok, Thailand!

Intercontinental Hotel Bangkok, Thailand

APSCC is pleased to announce that the APSCC 2019 Satellite Conference & Exhibition will be held in Bangkok, Thailand on 19th – 21st November 2019. For the first time held in November as Asia's must-attend executive event for the satellite and space industry, APSCC 2019 will incorporate industry veterans and new players through the 3-day of in-depth conference program to a broader audience. For more information please visit www.apscclsat.com

SATELLITE BUSINESS

Hughes Announces JUPITER System Enhancements for Highest Possible Performance and Efficiency

May 1, 2019 - Hughes Network Systems announced enhancements to its JUPITER System, the company's next generation very small aperture terminal (VSAT) platform for broadband services over both high-throughput and conventional satellites. The Hughes JUPITER System enables operators to achieve the highest possible performance and efficiency for satellite broadband, with enhancements including: support for up to 300 Mbps of throughput; 16,000 TCP sessions; a newly designed, cost-effective Ka-band radio employing higher order modulation for the return channel; reduced inroute channel spacing; and Layer 2 protocol support. Designed with advanced DVB-S2X, terminals in the JUPITER family now support 300 Mbps of throughput plus acceleration of 16,000 TCP sessions – ideal for applications with many simultaneous users, whether for fixed cellular backhaul and Community Wi-Fi Hotspot solutions, or for mobility services on an airplane or ship. Employing an integrated linear Ka-band radio, the JUPITER System supports both 8PSK and 16APSK higher order modulation schemes, delivering more bits per hertz, which combined with reduced spacing of the return channel yields higher bandwidth efficiency and lower

service cost for operators. Additional new features include Layer 2 support, enabling operators to seamlessly integrate satellite and terrestrial offerings, plus support for mobility roaming among JUPITER-equipped operators offering aero and maritime services.

Comtech EF Data Expands Satellite Modem Product Line

May 1, 2019 - Comtech EF Data Corp. expanded its Satellite Modem product line, introducing more form factor choices, the SLM-5650C and SLM-5650C ODU CyberLynx™ Software Defined Modems, and enhanced performance options. The SLM-5650C and SLM-5650C ODU CyberLynx Software Defined Modems are the latest generation modem solutions featuring extremely compact form factors and software options. The new modems can be integrated with a variety of platforms and provide an upgrade path to support future requirements. The modems are designed to comply with the widest possible range of U.S. Government and commercial standards, and are compatible with the largest number of satellite modems in the industry. The SLM-5650C CyberLynx model is an indoor product that operates from -10°C to +55°C using conductive cooling. The heat is transferred from the electronics to the housing and then to an external mounting surface, such as a trailer wall. The SLM-5650C ODU CyberLynx model is a true IP67 rated Outdoor Unit (“ODU”) that is designed to meet MIL-STD-810G and operates from -32°C to +65°C. The modems offer unparalleled protection of critical network traffic using advanced physical layer waveforms and proven TRANSEC protection. The SLM-5650C and SLM-5650C ODU CyberLynx feature AES-256 TRANSEC that is fully compatible with Comtech EF Data’s new SLM-5650B and legacy SLM-5650A Satellite Modems.

Satmotion Pocket and iDirect Ensure Reliable Connectivity at Scale

May 1, 2019 - Integrasys has announced that its Satmotion Pocket auto-commissioning tool is being tested on iDirect Velocity, a highly scalable Very Small Aperture Terminal (VSAT) platform to deliver managed service offerings across a wide array of markets, which is used by many of the largest satellite operators including Intelsat, SES and Inmarsat. Satmotion Pocket is an easy-to-use tool for simplifying the VSAT commissioning process. It runs as a simple mobile application and ensures that installers are able to accurately set up VSAT antennas while drastically reducing deployment time and the risk of errors. Ideal for high throughput satellite (HTS) operators, iDirect Velocity enables massive scale, global bandwidth management and advanced mobility. By using Satmotion Pocket, iDirect Velocity users can ensure that all their VSAT remote sites across the entire network are set up quickly and accurately commissioned. This reduces time-to-market, maximizes network performance and minimizes operating expenses.

Comtech Xicom Announces New 650-Watt Ka-band SATCOM HTS Gateway Uplink Power Amplifier

May 1, 2019 - Comtech Telecommunications Corp.’s Santa Clara, California-based subsidiary, Comtech Xicom Technology, Inc. (Xicom), which is part of Comtech’s Commercial Solutions segment, announced a new 650-Watt Ka-Band amplifier for High-Throughput Satellite (HTS) gateway service. The XTD-650KaL is a compact power amplifier designed for low cost installation and long life. Its antenna is mounted at the feed to minimize path loss. This new traveling wave tube amplifier (TWTA) offers 150-Watts of more power than the classic 500W Ka-Band amplifier and features 215W of linear power at -19 dB Noise Power Ratio (NPR) across the 27.5 to 30 GHz frequency range. The amplifier is available with Xicom’s SuperCool™ liquid cooling, which has many practical advantages over traditional air-cooled amplifiers including reduced heat load in hubs, flexible and more compact installation, ease of service and maintenance, higher reliability, ambient noise reduction and gain stability over ambient temperature. Power combining and redundancy architectures are also available.

EchoStar Mobile and RigNet Partner to Promote Innovative Mobile Satellite Services

May 1, 2019 - EchoStar Mobile, a mobile operator providing connectivity across Europe through a hybrid satellite and terrestrial network and a subsidiary of EchoStar Corporation, and RigNet announced an agreement to promote and distribute EchoStar Mobile IP-based Mobile Satellite Services (MSS) for voice and data to RigNet’s European customer base. RigNet will distribute equipment and provide secure, reliable and cost-effective connectivity services via the EchoStar XXI spacecraft operating in the S-band spectrum (with a complementary ground component) licensed in the 28 European member states. Equipment for the EchoStar Mobile network, including advanced IP voice and data terminals, is designed and manufactured by EchoStar subsidiary Hughes Network Systems, LLC, the global leader in broadband satellite networks and services.

Telenor Satellite Selects Newtec Technology to Meet Growing Bandwidth Demand

May 2, 2019 - Telenor Satellite aims to satisfy rising demand from its customers for higher throughput maritime services on its THOR 7 Ka-band High Throughput Satellite (HTS) with a new collaboration with Newtec on their Newtec Dialog® platform. Telenor Satellite will use the platform for high end users such as Ferry, Cruise and OSVs where they will be able to fully exploit the potential of THOR 7 and deliver a service that far exceeds what is possible to deliver today using existing hub based technology. Newtec Dialog® also opens up the possibility to use THOR 7 in new verticals not presently using hub based technology for service delivery. Launched in 2015, THOR 7 targets the North Sea, North Atlantic/Norwegian Sea, Baltic Sea, Black Sea, Caspian Sea, Red Sea, the Persian Gulf and the Mediterranean Sea. Its HTS payload uses high power spot beams making it ideally suited for the mobility VSAT market. Telenor Satellite's new Anker suite of services was also recently developed to meet growing demand for unique VSAT profiles capable of meeting any requirement.

Thuraya Signs Strategic Agreement with Elcome to Drive Maritime Growth

May 2, 2019 - Thuraya Telecommunications Company, a subsidiary of the Al Yah Satellite Communications Company (Yahsat), announced it has signed a Service Partner agreement with Elcome, one of the world's largest marine technology system integrators. Elcome will provide Thuraya's products and services worldwide across key vertical markets. Headquartered in Dubai and operating out of 23 offices across 11 countries, Elcome has developed a diversified portfolio of technologies and solutions since its founding in 1969. The company's first-class integration capabilities complement Thuraya's renowned satellites, robust global network, best-in-class products and 20+ years record of outstanding resilience, availability and innovation. This strategic agreement is a key milestone in Thuraya's strategy to drive growth in its maritime business. The partnership will further expand market potential by offering customized solutions for this market segment.

GetSAT and Inmarsat Introduce Market's Smallest Ruggedized Terminal for Global Xpress

May 2, 2019 - GetSAT and Inmarsat have announced that Inmarsat has type approved GetSAT's MilliSAT-H-GX and MilliSAT-W-GX for use on its Global Xpress service. These new terminals are the lightest and most compact all in one on-the-move solutions serving the Global Xpress network, the world's first and only globally available, high-throughput wideband network. Leveraging GetSAT's highly efficient, patented InterFLAT miniaturized flat panel antenna technologies, these MilliSAT-H-GX and MilliSAT-W-GX are the first communications-on-the-move terminals for ground vehicles using the worldwide Global Xpress network. These ruggedized terminals have been proven to operate in some of the toughest environmental conditions. Their combination of size, weight, and fast-tracking technology allows for operation on land-mobile and maritime platforms with aggressive vehicle dynamics.

Hughes in Partnership with Facebook Launches HughesNet Wi-Fi Hotspots in Brazil and Mexico

May 2, 2019 - Hughes Network Systems, LLC announced a partnership with Facebook to launch HughesNet® Wi-Fi hotspots throughout Brazil and Mexico, supported by the Facebook Express Wi-Fi platform. HughesNet Wi-Fi hotspots empower local merchants of villages and towns to offer affordable Internet access to their customers on a prepaid basis, employing a solution that combines a Hughes satellite VSAT (Very Small Aperture Terminal) and Wi-Fi equipment with Facebook's Express Wi-Fi platform. Facebook's Express Wi-Fi is a platform that helps service providers and mobile network operators build, operate, grow, and monetize their Wi-Fi business in a sustainable and scalable way. Facebook partners with service providers and operators who expand the provision of fast, affordable, and reliable access to the Internet over Wi-Fi using Express Wi-Fi. Hughes customers have deployed over 32,000 of its satellite-enabled Community Wi-Fi hotspots in Russia, Mexico, Brazil, and Indonesia, bringing the benefits of Internet access to more than 25 million people around the world. Any user can access the Internet with a Wi-Fi capable handheld or laptop, either on a prepaid or government-subsidized (USO) basis, depending on the service model – and the solution can be readily deployed virtually anywhere within the satellite footprint, including areas unserved or underserved by wireline or wireless infrastructure.

Norsat Launches World's First Q-band LNB

May 3, 2019 - Norsat International announced the launch of the world's first LNB (Low-noise block downconverter) operating in the Q-band. Globally renowned as being pioneers in the LNB market, Norsat Q-band PLL LNB, the Q1000H will facilitate experimental and pioneering work with Q-band satellites initiatives. With the arrival of 5G and preparation for 6G, the satellite industry is expected to move from Ku

and Ka band towards Q-band over the next decade. Norsat aims to be the first to provide next-gen products in the EHF frequency range, supporting satellite communications, remote sensing, terrestrial microwave communications and radio astronomy studies. Operating in the frequency band of 40.5 – 41.0 GHz, the LNB can be used in future Q-band satellite terminals, fixed antennas, telescopes and more.

Eutelsat Selects Ground Infrastructure Providers for its KONNECT Satellite Programme

May 6, 2019 - Eutelsat Communications has chosen high-performance ground infrastructure providers to operate its future KONNECT satellite and associated broadband services: General Dynamics SATCOM Technologies has been selected to offer and deploy seven antennas, while Hughes Network Systems (HUGHES) will provide its JUPITER ground network system. With 75 Gbps of capacity, KONNECT is a new generation multi-beam satellite scheduled for launch at the end of this year. Once in service in 2020, the all-electric satellite will serve the broadband Internet market on a large scale throughout Western Europe and Africa. General Dynamics SATCOM Technologies' solution will provide seven 9-metre antennas to support traffic exchange between the satellite and its ground network system, ensuring a best in class performance and speed of deployment on a cost-efficient basis. Eutelsat's long-standing partner, Hughes, a world leader in satellite broadband networks and services, will provide its Jupiter platform for KONNECT's ground network system, including baseband equipment and new generation user terminals.

Euroconsult Group & RKF Engineering Solutions Announce Partnership Agreement

May 3, 2019 - The Euroconsult Group and RKF Engineering Solutions announced they have entered into a partnership agreement, combining Euroconsult's industry leading strategic and operational consulting and research services with RKF's innovative engineering solutions for communication networks and satellite systems. This collaboration will enable each of the independent entities to rely on the services portfolio of the other in order to bring added value to government and private sector clients alike. Euroconsult Group's vast range of consulting services to stakeholders in the high technology sector include market, policy, financial, regulatory and technical assessments, as well as satellite procurement support, construction monitoring and operations support. RKF is an industry leader in regulatory service and support, spectrum management, system engineering, and modelling and simulation for complex networks.

Intellian Launches World's First 1.5m Ku to Ka Convertible VSAT Terminal

May 6, 2019 - Intellian, the global leader of mobile satellite communication antenna systems, is introducing the new 1.5m Ku to Ka convertible VSAT terminal. The world's first and only 1.5m Ku to Ka convertible VSAT, v150NX, is a future-proof system supporting 2.5GHz Wide Ka-band networks as well as GEO (Geostationary Earth Orbit), MEO (Medium Earth Orbit) and LEO (Low Earth Orbit) constellations. Its highly efficient design delivers the best RF performance of any 1.5m system on the market today for ship owners, operators and network providers. It is easily converted to Ka-band by changing the RF Assembly and Feed, as the reflector and radome are optimized for operation across both frequency bands. The v150NX Ka state-of-the-art terminal is also compatible with future 2.5GHz Wide Ka-band networks and has delivered speeds of 830Mbps in trials already. With GEO/MEO/LEO tracking capability, the v150NX Ka delivers unmatched performance today and is ready for operation with forthcoming new high-speed and low-latency networks.

X2nSat Selects LeoSat's Laser-Enabled Data Network to Support Healthcare Communications

May 6, 2019 - LeoSat Enterprises, which is launching a constellation of 108 low-earth-orbit communications satellites that will provide the fastest, most secure and widest coverage data network in the world, today announced that X2nSat, the highly reliable satellite solutions provider, has selected LeoSat to support new infrastructure solutions for the ever-expanding needs of the healthcare industry. X2nSat currently offers SatBlue, a proprietary line of voice and data communications solutions tailored for the healthcare industry (including data and internet redundancy, emergency response trailers and telemedicine capabilities), which allows hospitals and medical office buildings to customize communications solutions based on their existing infrastructure, and to expand when the need for additional capabilities arises. Whether it is through telemedicine, video conferencing or transferring medical records via broadband, hospitals and medical facilities have unique needs when it comes to communications. Network reliability and scalability are key for both service continuity and disaster recovery plans. With healthcare, a back-up communications system not only keeps the business running, it can help save lives.

OneWeb and Intellian Announce User Terminal Partnership

May 6, 2019 - OneWeb has announced a partnership with Intellian to build user terminals designed specifically for remote enterprise networks, cellular backhaul expansion and remote connectivity needs. The user terminals will be the units provided to customers to enable the high-speed, low latency service that our global satellite constellation will deliver. This partnership represents a significant step-forward in the development of OneWeb's system following the launch of its first satellites and its first customer announcements in February 2019. With six satellites now in orbit and a range of antennas now in place, OneWeb is ready to advance the development of its portfolio of user terminals, ranging from compact flat panels to highly-efficient dual parabolics. All our user terminals will be designed to serve a range of customer needs, market verticals and use cases. With many remote and unconnected areas around the world still lacking access to broadband, these user terminals will help to close gaps and connect remote enterprises, as well as, expand cellular backhaul capacity which is essential for extending connectivity. The terminals will utilize dual-parabolic antennas to deliver cost-effective and efficient throughput making high-speed and low-latency services available in hard-to-reach areas and helping bridge the digital divide.

Orbit Communication Systems Announces New MPT 87 Airborne Terminal

May 6, 2019 - Orbit Communication Systems announced its new MPT 87 Airborne Terminal. This advanced, MIL-STD qualified terminal initially features a high gain 87cm (34") hybrid Ku-band antenna, with a Ka-band configuration in development. It will operate across the full Ku band and can be easily switched in real time between different operators and satellites. The MPT 87 is the latest addition to the innovative MPT terminal family and is planned for initial service operation later this year. Like all other MPT versions, the MPT 87 will be delivered fully integrated with RF and control electronics, and associated software. The lightweight, small-footprint terminal couples high performance and Orbit's industry-leading reliability. The MPT modular approach facilitates its adaptation to different aircraft and platforms, allowing it to address new opportunities and help grow emerging aeronautical communications markets.

Yahsat and Hughes Form Satellite Services Joint Venture in Brazil

May 6, 2019 - Al Yah Satellite Communications Company (Yahsat) and Hughes Network Systems announced an agreement to enter into a joint venture to provide commercial Ka-band satellite broadband services in Brazil. This new venture combines Hughes experience delivering satellite networks and services in Brazil with Yahsat's strong position and capabilities in the region. Hughes will hold the majority interest in the joint venture. The new entity will combine Hughes do Brasil with Yahsat's consumer broadband company in Brazil, creating a strong value proposition to serve the growing market demand for a wide range of broadband services, including consumer Internet access, enterprise networks, cellular backhaul and Community Wi-Fi Hotspot solutions. The venture will combine the companies' more than 65 Gbps of Ka-band satellite capacity on Hughes 65 West, Hughes 63 West and Al Yah 3 high-throughput satellites (HTS), reaching more than 95 percent of Brazil's population. It also includes Hughes and Yahsat's three gateways in Brazil. In addition to the combined existing capacity, the new entity will also leverage the capacity on Hughes next-generation JUPITER 3 Ultra High Density Satellite (UHDS), designated EchoStar XXIV, planned for launch in 2021. In 2018, Yahsat and Hughes launched a joint venture to provide satellite broadband services to the Middle East, Africa and southwest Asia markets.

Viasat and Telebras Bring High-Speed Internet to the Brazilian e-Government Initiative, GESAC

May 6, 2019 - Telecomunicações Brasileiras, Telebras, a Brazilian state-owned telecommunications services provider, and Viasat announced that approximately 900,000 students in nearly 3,000 public schools and hundreds of additional sites across Brazil have already received access to high-speed internet through the Geostationary Satellite of Defense and Strategic Communications (SGDC-1), under the initiative of the Ministry of Science, Technology, Innovations and Communications (MCTIC) through the Brazilian e-government initiative "Governo Eletrônico - Serviço de Atendimento ao Cidadão (GESAC)." Hundreds of additional sites have also benefited, such as border patrol posts from the Armed Forces, public health units and indigenous villages. In this partnership, Telebras is responsible for the management, commercialization and operation of the SGDC-1 satellite, while Viasat provides its terrestrial network equipment and satellite services widely used in the international market. Jointly the companies are focused on maximizing the use of the SGDC-1 satellite's capacity to bring high-speed broadband services to communities where internet service has historically been unavailable.

Cobham Introduces LeanREL Electronics

May 6, 2019 - Cobham Advanced Electronic Solutions, a leading provider of electronics technology and

services for space and other high reliability applications, announced the new LeanREL product family designed to meet the needs of small satellite and non-traditional spacecraft manufacturers. The LeanREL product family, comprised of microprocessors, microcontrollers, as well as memory and interface integrated circuits (ICs), leverages Cobham's 30+ years of radiation-hardened, QML level reliability, and innovative space systems design expertise and offers an unmatched combination of user benefits. LeanRel ICs are ideal for space-flight, military and aerospace applications that need to operate and survive in harsh environments while remaining cost competitive. Based on the same QML pedigree and silicon as the company's renowned HiRel solutions, LeanREL ICs can enable significant cost savings - up to 60% depending on quantities, to extend mission durations well beyond that of typical off-the-shelf ICs and greatly speeds up time to market through rapid prototyping.

Newtec Equipment Enables World's First 5G Backhaul LEO Satellite Demonstration

May 7, 2019 - Newtec, a leader in the design, development and manufacture of equipment for satellite communications, has played a key role in the world's first demonstration of 5G backhaul over a Low Earth Orbit (LEO) satellite with global satellite operator Telesat, a tier 1 European mobile operator and the University of Surrey. The successful tests confirmed that LEO satellites will provide effective backhaul transport, including for future 5G networks. The live test connected the University of Surrey's 5G Test bed network within its 5G Innovation Centre to Telesat's Phase 1 LEO satellite. Video chat sessions, simultaneous 8K streaming and Internet browsing were tested within stringent Quality of Service (QoS) and slicing parameters. A 4K video was also transferred to the edge of the 5G network representing a future 5G use case. Out of the technologies tested, Newtec modems demonstrated higher modulation, efficiency and throughput performances, and the ability to deliver 8K videos with superior Quality of Experience (QoE). This paves the way for increasingly bandwidth-hungry applications over 5G for the maritime, aero, connected car and broadband markets which have not previously been possible.

FMC GlobalSat Selects LeoSat to Take Maritime, Off-shore & Remote Communications Networks

May 7, 2019 - LeoSat Enterprises has entered into an agreement with FMC GlobalSat, a global provider of satellite and wireless connectivity solutions to geographically remote businesses. Through the arrangement, FMC GlobalSat will upgrade its existing satellite solutions, giving it's 4G/LSAT customers access to LeoSat's secure and highly-efficient satellite connectivity for maritime, energy and in-transit use cases. Big Data is clearly driving the need for new communications infrastructure and data volumes are exploding, with global networks are already carrying more than 1 Zeta Byte of traffic, and this is forecast to grow exponentially. This increasing demand to move large quantities of data quickly and securely around the world is fast outpacing the infrastructure needed to carry it. LeoSat's unique new network has been designed to solve these essential communications and connectivity issues and provide new opportunities for business sectors such as multi-national enterprise, telecommunications, oil & gas, maritime and government services.

Gilat Announces Successful Demonstration of 5G Connectivity over a LEO satellite

May 7, 2019 - Gilat Satellite Networks Ltd. announced that a Gilat high throughput modem enabled the first ever demonstration of 5G services over a Low Earth Orbit (LEO) satellite. The successful test was conducted with the tier-1 European operator last month using Telesat's Phase 1 LEO satellite connected to the University of Surrey's 5G test bed network. The demonstration included video chatting, web browsing and simultaneous streaming of up to 8K video. The project team also transferred 4K video to the edge of the 5G network, which is a key 5G future use case. Live testing of these content rich data streams was achieved using 5G cellular technology that offers many benefits but which requires an advanced backhaul solution that can quickly and cost effectively extend these benefits to subscribers beyond major cities. The testing confirmed that this required 5G backhaul solution can be provided by Gilat modem technology working with Telesat's Phase 1 LEO satellite.

Inmarsat SB-S Approved by U.S. Federal Aviation Authority for Operations and Safety Platform

May 7, 2019 - Inmarsat announced that it has received final approval from the U.S. Federal Aviation Authority (FAA) for its SB-S digital airline operations and safety platform. The FAA has validated the capability of Inmarsat SB-S to support air traffic services by providing direct datalink communication between pilots and Air Traffic Control (ATC). The endorsement follows a recommendation last year from the FAA's Performance Based Operations Aviation Rulemaking Committee (PARC). FAA approval follows an extensive live evaluation of SB-S by Hawaiian Airlines and United Airlines, which took place between June 2015 and July 2018 on approximately 25,000 flights and seven aircraft types. Inmarsat partners in the

evaluation included Cobham Aerospace Communications, Collins Aerospace, SITAONAIR, ASG and L2. China's Shenzhen Airlines is also using SB-S and Inmarsat's digital airline operations platform has been selected by Airbus as a Light Cockpit Satcom (LCS) line fit solution on its A320 and A330 families. Combining cutting-edge satellite technology with secure IP connectivity, SB-S is the world's first and only global broadband solution for aircraft operational and safety communications, driving digital transformation in the airline industry. SB-S provides airlines with capabilities and benefits no other satellite communications provider can deliver.

Newtec's Excellence in Aviation Recognized with Prestigious MSUA Award

May 7, 2019 - Newtec was awarded with the Mobile Satellite Users Association (MSUA)'s Top Infrastructure Award. Presented at an exclusive ceremony taking place as part of SATELLITE 2019, the accolade was given to highlight the flexible merits of Newtec's ability to deliver and enhance in-flight connectivity. As revenues associated with global connectivity to aircraft continue to increase, the Newtec Dialog VSAT platform, introduced in 2016 in partnership with Panasonic Avionics, has now been installed in more than 800 aircraft. The Newtec Dialog VSAT platform has the capacity to offer users up to 20 times the original throughput available in-flight previously. As a tool compatible with a plethora of in-flight applications, Newtec Dialog can dramatically improve data rates and unlock numerous on-board services.

Hughes and Airtel Announce New Venture to Serve Enterprise and Government Customers in India

May 7, 2019- Hughes Communications India Ltd, and Bharti Airtel Limited ("Airtel"), India's leading telecommunications services provider, announced an agreement to combine their Very Small Aperture Terminal (VSAT) operations in India. The combined entity will bring greater scale, operational efficiencies and market reach to serve India with secure and reliable broadband satellite and hybrid solutions for enterprise and government networks. Hughes and its subsidiaries will maintain majority ownership in HCIL, the surviving entity, and Airtel will have a significant shareholding. The largest satellite service operator in India, HCIL provides broadband networking technologies, solutions, and services for businesses, governments. Airtel is a significant VSAT service provider in India, offering satellite connectivity to unreachable terrains and helping businesses supplement their terrestrial networks with satellite for primary and backup connectivity. The combined entity will be positioned to introduce new VSAT and related technologies to deliver a wide range of quality products and services. HCIL will continue to serve existing HCIL and Airtel customers while focusing on serving the growing networking needs of enterprise and government customers in India.

PSN Consortium Signed a Public Private Partnership Agreement with Government of Indonesia

May 8, 2019 - PSN Consortium signed a Public Private Partnership (PPP) agreement with the Government of Indonesia represented by Ministry of Communication and Information Technology (MCIT) for the Multifunctional Satellite (MFS) called SATRIA. The SATRIA satellite is a 150 Gigabytes per second (Gbps) Very High Throughput Satellite (VHTS) to cover the whole Archipelago of Indonesia, providing high speed internet to serve 98 thousand schools, 40 thousand district and subdistrict administration offices, community health centers and other local government offices. The SATRIA satellite is planned to be launched at the end of 2022 or early 2023. The 15 years PPP contract is valued about Rp 21,7 trillion (equivalent to USD 1,47 billion) to provide a satellite, launch vehicle, 11 gateways, a start-up hub as well as 15 years operational cost. PSN Consortium consists of Pasifik Satelit Nusantara (PSN), PT Pintar Nusantara Sejahtera (financial holding company of PSN), PT Dian Semesta Sentosa, and PT Nusantara Satelit Sejahtera will provide the full SATRIA network. Meanwhile for the interim solution, PSN through the recently launched Nusantara Satu satellite will provide the largest portion of the requirement satellite capacity to BAKTI (Agency for Accessibility for Telecommunication and Information Technology). This interim solution together with other current users will provide a substantial load to the Nusantara Satu satellite. PSN and its partners is planning to launch Nusantara Dua satellite in early 2020 to anticipate the ever rising demand of satellite capacity in Indonesia. PSN and its partners with Nusantara Satu, Nusantara Dua and SATRIA satellite will become one of the largest regional player in Asia-Pacific region.

Kymeta Partners with Türksat to Bring Connectivity to Europe, Middle East and Africa

May 8, 2019 - Kymeta announced a new partnership with Türksat, one of the world's leading companies providing satellite communications across a wide area extending from Europe to the Middle East and Africa, at Satellite 2019. The partnership will bring connectivity solutions to Türksat customers for voice, data, internet, TV, and radio broadcasting. Kymeta solutions provide reliable communications at high speeds and on rough seas or terrains. Türksat provides flexible solutions aimed at customers' needs in

regions where no terrestrial infrastructure is available. Kymeta's solutions help Türksat take connectivity where it has never been before.

iDirectGov Wins MSUA's 2019 Satellite Mobility Innovation Award for Best Cybersecurity Solution

May 8, 2019 - iDirect Government (iDirectGov), a leading provider of satellite communications to the military and government, today announced that it has been awarded the Mobile Satellite Users Association (MSUA)'s 2019 Annual Mobility Innovation Award (Top Cybersecurity Solution) for its enhanced transmission security (TRANSEC)-compliant network architecture. The MSUA's annual Satellite Mobility Innovation Awards which celebrate top industry innovators, bears testament to TRANSEC-Compliant Network Architecture's ability in exceeding the requirements outlined by the U.S. government, while maintaining the quality of service needed to support voice, video and data over a satellite link. To mitigate cyber threats, iDirectGov provides enhanced TRANSEC capabilities with the Evolution 4.2 software, building upon the company's existing two-way TRANSEC. Evolution 4.2 delivers ultra-enhanced features in performance, efficiency and security in support of the company's defense and government customers. The software unleashes the full capabilities of the 9-Series satellite routers, defense line cards and tactical hub.

Intellian Wins Satellite Technology of the Year Award

May 9, 2019 - The world's first 2.4 meter tri-band and multi-orbit maritime VSAT antenna system, the Intellian v240MT, has won Via Satellite's inaugural Satellite Technology of the Year Award. The 2018 Satellite Technology of the Year award was presented during a special Awards Luncheon at SATELLITE 2019. A hard fought contest, the winner was determined by a combination of expert judges and industry votes. The shortlist featured last year's stand-out technology developments from across the satellite industry, with the v240MT selected to win for its ability to operate with Geostationary (GEO), Medium Earth Orbit (MEO) and Low Earth Orbit (LEO) satellites using C-, Ku- or Ka-band frequencies, and the game-changing flexibility and resilience this provides. Introduced in 2018, the unique Intellian v240MT is the only 2.4m-class tri-band and multi-orbit VSAT antenna system available. With Intellian's ground-breaking antenna technology and Intelligent Mediator Solution at its core, the v240MT offers a previously unimaginable level of availability and quality of service for vessels operating globally. Intellian's cutting-edge v240MT was recognised for its innovation, benefit to the industry, and overall disruption to the satellite landscape. It's ability to access nearly all available satellite constellations while anticipating demand from new GEO, MEO and LEO networks paves the way for a new era of high-throughput maritime connectivity.

SES Networks and PNG DataCo Restore Connectivity to Earthquake-Stricken Papua New Guinea

May 13, 2019 - Mobile networks and broadband internet access for corporate and consumer customers operated by PNG DataCo have been restored by SES Networks following a 7.2-magnitude earthquake that struck near the town of Bulolo, Papua New Guinea in the early morning hours of 7 May 2019, SES announced. Connectivity for DataCo customers was disrupted due to damage caused to critical nodes of terrestrial and subsea transmission infrastructures between Port Moresby and Madang following the earthquake. Contingency teams from SES Networks used an additional O3b Medium Earth Orbit (MEO) beam to deliver an extra 1.5 Gbps of low-latency IP Transit service to ease network congestion on DataCo's damaged primary link. The additional bandwidth was made available within hours of receiving a request from DataCo.

Intellian Introduces the All New 1 Metre Global Xpress Terminal, GX100NX

May 13, 2019 - Intellian, the global leader of mobile satellite communication antenna systems, is unveiling an all new 1m Global Xpress terminal, GX100NX. The Intellian GX100NX offers high-speed data and global operation, and exceptionally efficient RF design for unrivalled link performance on the Fleet Xpress service. It is also future-proof, with support for 2.5GHz Wideband Ka networks and optimized reflector and radome. GX100NX users can also unlock even higher levels of bandwidth with a 10W BUC option, which is easy to install and requires no additional components. Based on Intellian's new NX technology platform, the GX100NX uses a single coaxial cable, which combines Tx, Rx, and DC power, to simplify installation. Its cutting-edge modular design results in lower cost of ownership throughout the entire lifecycle, while improving reliability and streamlining maintenance. The GX100NX introduces a new 'All-in-One' GX Below Deck Terminal (BDT) which integrates an antenna control unit (ACU), a modem, a power supply, a 4-port switch and a mediator in a single unit to further reduce the time and cost of installation in Intellian's Fleet Xpress Rack. Reducing complexity further, Intellian also provides an upgraded antenna management and control platform. The new AptusNX software includes an installation wizard with a step-by-step

commissioning guide for easier setup and enhanced diagnostic capabilities, which sends an alert to the operator when predictive maintenance is required.

Honeywell Selects Gilat's Aero Modem for its JetWave Satellite Communication Solution

May 13, 2019 - Gilat Satellite Networks announced that Honeywell has selected Gilat's Taurus IFC modem for its JetWave satellite communication system. The integration of Gilat's aero-modem will enable Honeywell to offer its JetWave solution within territories as well as to roam in-and-out of territories where Gilat's ground network is deployed. The Honeywell-Gilat solution will first be deployed in China over China's HTS Ka network for both domestic and flights going in-and-out of China, expanding later to additional regions around the globe. Gilat's high-performance Taurus aero modem, has a proven global track record of providing unparalleled passenger user experience. Gilat's industry leading IFC solution operates the largest global IFC network with over 1,000 commercial aircraft installed with Gilat's solution.

Dream Cruises Selects SES Networks' Connectivity for Cruise Fleet

May 15, 2019 - Dream Cruises, a brand of Genting Cruise Lines, has selected SES Networks' Signature Cruise Solution to provide exceptional speeds, low latency, and unmatched fibre-like service to its passenger ship fleet, comprised of World Dream, Genting Dream and Explorer Dream, for the Asian luxury market. Crew and guests of the newly-launched Explorer Dream will experience exceptional SES-powered guest connectivity onboard the 75,000-gross-ton, 2,000-passenger ship. The SES Networks' solution will also be introduced onboard Genting Dream in September this year, completing the fleet-wide implementation that follows the successful launch of SES Networks' managed service onboard World Dream, Dream Cruises' second cruise ship, which debuted in 2017. The new Explorer Dream will have homeports in Shanghai and Tianjin, as well as Sydney and Auckland later in the year. SES Networks' Signature Cruise Solution combines the low latency of its O3b medium earth orbit (MEO) satellite constellation with a fully managed end-to-end service, backed up by its highly reliable geostationary (GEO) fleet to ensure network resilience. The result is a seamless, high-performance broadband service delivered to everyone onboard the Dream Cruises fleet.

APSI and ICEYE to Provide South Korean New Space Market with SAR Imaging Solutions

May 15, 2019 - Asia Pacific Satellite Inc. (APSI) and ICEYE, the global leader in small satellite synthetic-aperture radar (SAR) technology, announced that the organizations have signed a memorandum of understanding about working together to support the South Korean New Space market. As a part of the agreement, APSI will supply ICEYE's SAR imagery in South Korea and also provides mutual support from both APSI and ICEYE to deliver radar imaging related satellite solutions for the South Korean market. ICEYE successfully launched its second radar imaging satellite, ICEYE-X2, in early December 2018, receiving significant attention in the global Earth observation market. The satellite launch was an initial step towards creating the necessary SAR satellite constellation of ICEYE for frequent and reliable satellite-based information about any location on Earth, regardless of the time of day, and even through cloud cover. ICEYE is providing commercial data services to both government and industry users. The company is actively increasing the size of its SAR satellite constellation, with up to five more satellites being launched throughout 2019. ICEYE's small SAR satellites can be manufactured and launched cost-effectively, providing up to 1-meter resolution SAR images. APSI is a provider of equipment and services for multiple government programs in South Korea, and with the support of ICEYE's leading technology, will grow to provide further data, hardware and radar imaging solutions to the governmental and commercial customers in South Korea.

Comtech Receives Order for Air Traffic Control Communications Network in Latin America

May 16, 2019 - Comtech EF Data has received a \$1.0 million equipment order for an Air Traffic Control (ATC) communication network in Latin America. The order specified NetPerformer Satellite Routers developed by Comtech EF Data Corp.'s subsidiary, Memotec, which deliver highly reliable, secured communications across hybrid terrestrial lines, as well as microwave and satellite transmissions. The NetPerformer platform combines the functionality of a data router, a multiplexer and a voice gateway in a single device, enabling users to create converged networks and transport mission-critical information over satellite or terrestrial links. The Memotec NetPerformer ensures that Air Traffic Management (ATM) services are prioritized adequately and cost efficiently delivered using the best available path at any time, thus enabling ATC networks to be compliant with EUROCAE WG67 ATM standards. The NetPerformer meets stringent service quality requirements for delay, jitter and packet loss, and compensates for transmission network delays, enabling Air to Ground VHF radio communications and radar information to

transit seamlessly across terrestrial or satellite links. It is the only solution compliant with VHF-AA (“VHF Extended Range”) EUROCAE specifications. As a voice and VHF over IP gateway solution compliant with EUROCAE WG67 ED137-B, the platform is a key enabler for the evolution of ATC services towards all-IP networks.

Speedcast Creates Custom Connectivity Solution for Hospitals in Papua New Guinea

May 17, 2019 - Speedcast announced that it is providing the Western Highlands Provincial Health Authority, in Papua New Guinea, with a custom private C-band VSAT network for more reliable, cost-effective connectivity for several local hospitals. This solution will ensure consistent Internet and reliable hospital to hospital communications. Western Highlands Provincial Health Authority required high-availability internet and a WAN connectivity solution at Mount Hagen Hospital in Papua New Guinea (PNG), as well as at other district and provisional hospitals. Speedcast worked with Western Highlands Provincial Health Authority to develop a customized MESH solution that guarantees service uptime of 99.5% availability. The solution will bring reliable connectivity to each hospital and also allow district and provisional hospitals to connect to Mount Hagen Hospital. In the first stage of the project, Speedcast will provide 10/10 Mbps of internet connectivity to Mount Hagen Hospital. Next, Speedcast will install a Mini-HUB solution to connect the remaining district and provision hospitals.

Teekay Offshore Renews and Expands VSAT Connectivity Partnership with Marlink

May 21, 2019 - Teekay Offshore, one of the world's largest marine energy transportation, storage & production companies, has renewed and expanded its agreements with award winning maritime connectivity provider Marlink to continue utilizing high quality global VSAT services for a further four years. The contract extension ensures reliable global broadband connectivity for data sharing and smart vessel operations, improved facilities for crew welfare and a flexible platform to generate efficiencies from the maritime Internet of Things (IoT). As part of the contract renewal Marlink will provide its Sealink VSAT service across Teekay Offshore's entire fleet of shuttle tankers and FSOs as well as welcoming six new E-Shuttle tankers under construction at Samsung Heavy Industries. All shuttle tankers will benefit from a permanent bandwidth boost as part of the Marlink contract renewal, supporting Teekay Offshore's digital strategy designed to support environmental and operational sustainability.

Viasat Receives Supplemental Type Certificate for its Ka-band In-flight Connectivity System on Super Midsize Cabin Business Jets

May 21, 2019 - Viasat received Supplemental Type Certificate (STC) approval from the Federal Aviation Administration (FAA) for its Ka-band in-flight connectivity system, the Global Aero Terminal 5510, on super midsize cabin business jets. Since receiving kit certification, Viasat has installed the equipment on its first aircraft, which is now flying, and has several additional installations underway. The STC enables Viasat to install its terminal, wiring, server and wireless access points on-board key business and VIP aircraft. With the shipset installed, private jet passengers and crew can be simultaneously connected to a high-speed, high-quality internet connection that will enable multi-site video conference calling, access to corporate VPN connections and email, streaming of bandwidth-intensive videos, TV, music and more – during all stages of flight.

Viasat to Deliver the World's First Link 16-Capable Low Earth Orbit (LEO) Spacecraft

May 22, 2019 - Viasat announced it has been awarded a contract by the Administrator of the Space Enterprise Consortium, under the Air Force Research Laboratory Space Vehicles XVI program, to deliver and test the first-ever Link 16-capable LEO spacecraft. Leveraging the Company's leadership in satellite innovation and military communications, the Viasat-designed spacecraft is intended to enhance warfighters' situational awareness by extending the range of Link 16 networks – using a constellation of satellites to provide greater access to Link 16 capabilities in contested or congested environments. Under the XVI program, Viasat will become the first company to prototype and test space-based Link 16 capabilities compatible with fielded U.S. Air Force, Army, Navy, Marine Corps, and Special Operations Link 16-enabled platforms, including ground vehicles, aircraft, maritime vessels, and dismounted users. The XVI program is a key step towards making a global Link 16-enabled LEO satellite constellation, transforming Link 16 from a Line-of-Sight (LOS) to a Beyond Line-of-Site (BLOS) network, providing U.S. and allied military forces with ubiquitous, secure, high-speed and resilient communications necessary to improve the common operating picture across the global battlespace.

AWS Announces General Availability of AWS Ground Station

May 23, 2019 - Amazon Web Services announced the general availability of AWS Ground Station, a new service that makes it easy and cost-effective for customers to control satellites from AWS and download data from satellites into AWS Global Infrastructure Regions using a fully managed network of ground station antennas located around the world. Once customers upload satellite commands and data through AWS Ground Station, they can quickly download large amounts of data over the high-speed AWS Ground Station network, immediately process it in an Amazon Elastic Compute Cloud (Amazon EC2) instance, store it in Amazon Simple Storage Service (Amazon S3), apply AWS analytics and machine learning services to gain insights, and use Amazon's network to move the data to other regions and processing facilities. Getting started with AWS Ground Station takes just a few clicks in the AWS Management Console to schedule antenna access time and launch an Amazon EC2 instance to communicate with the satellite. There are no up-front payments or long-term commitments, no ground infrastructure to build or manage, and customers pay-by-the-minute for antenna access time used.

Viasat Delivers 18-Inch Ka-band IFC Antenna System

May 29, 2019 - Viasat Inc. announced the availability of its new Ka-band Global Aero Terminal (GAT-5518) to provide in-flight connectivity (IFC) services on government and business aviation aircraft – from government-focused Unmanned Aerial Vehicle (UAV) and fixed-wing military platforms to VIP business and corporate jets. The compact terminal delivers the industry's highest data rates for an 18 inch antenna, providing the highest forward link capacity (to the aircraft) and highest return link capacity (from the aircraft) to perform high-bandwidth applications such as advanced video streaming services. The GAT-5518 is the latest satellite communications (SATCOM) innovation to join Viasat's broad portfolio of Ka-band aero antenna systems.

Marlink Extends Partnership with Newtec to Enhance its Global VSAT Network

May 29, 2019 - Newtec and Marlink, the world's leading provider of end-to-end managed connectivity and IT solutions for enterprise and maritime industries, have extended their partnership to future-proof Marlink's global VSAT network. As the confirmed Number 1 maritime VSAT provider in the industry, Marlink will adopt the Newtec Dialog® platform to evolve and enhance its industry-leading VSAT services for its maritime customers. The agreement builds on the companies' long-term cooperation in the Enterprise market. Driven by the rising demand from its extensive customer base for higher throughput services, Marlink decided to step-up its investments by adopting the Newtec Dialog platform to continue building the superior VSAT network of tomorrow for the maritime industry. Marlink will expand the use of the Newtec platform for all maritime customers, including shipping and tanker companies, cruise ships, ferries, super yachts, fishing and offshore supply vessels (OSV). Leveraging the full potential of its global Sealink VSAT network, maritime customers will benefit from increased throughput, as well as IT and digital solutions to support their digital transformation.

Speedcast and Contiamo Form Strategic Partnership

May 30, 2019 - Speedcast International Limited and Contiamo GmbH announced a strategic partnership to deliver analytics solutions for optimized operational decision-making. The partnership strengthens Speedcast's Internet of Things (IoT) capabilities and helps enable the company to play a prime systems integrator role in the deployment of end-to-end IoT solutions. By deploying IoT solutions Speedcast is supporting customers with their digital transformation strategy and helping them improve operations and efficiency. The partnership with Contiamo will accelerate the process by applying data analytics and business intelligence to enable data-driven innovation.

Thuraya VSAT+ Empowers Smart Shipping and Digitalization as Sector Aims for Sustainability

May 30, 2019 - VSAT+, the ground-breaking maritime satellite service from Thuraya, will be unveiled in Europe at this year's Nor-Shipping conference and exhibition event in Oslo, three months after its commercial launch at the annual Thuraya partner conference in Dubai. With digitalization now a major driver of change in the maritime sector, Thuraya VSAT+ is the ideal satellite service to help fleet operators increase operational efficiency, gain market advantage and meet growing demand for monitoring and compliance. Thuraya VSAT+ seamlessly integrates the high-bandwidth speeds of Ku-Band and reliability of L-Band with affordable global coverage and high levels of security, resilience and flexibility. As the flagship of Thuraya's progressive maritime vision, it has been designed to help maritime customers achieve their goals and overcome the challenges of today's market.

BROADCAST

SES and BCE Showcase One-Stop Video Production and Contribution Solution

May 13, 2019 - SES and BCE will team up to demonstrate a one-stop automated studio solution capable of producing content, streaming it live via satellite, and distributing it onto an online video portal at SES Industry Days 2019. The end-to-end video production and contribution solution will integrate BCE's StudioTalk and MX1's OU Flex solution, with video production carried out via a camera on automated mode, distributed reliably via satellite, and simultaneously fed into external video feeds over IP networks. During the annual SES Industry Days event, SES and BCE will use the integrated solution to film subject experts during one-on-one interviews. The content will be pushed onto BCE's SNG van onsite equipped with an OU Flex modem before it is distributed through a high-performance link with guaranteed quality of service from SES' satellite. The content will then be streamed onto BCE's Online Video Platform for live and VOD distribution on websites and social networks.

Samsung, Spin Digital and SES Showcase 8K Content via Satellite

May 14, 2019 - The SES annual Industry Days event kicks off with the world leading satellite operator announcing that an 8K demo signal is broadcast directly to a flat screen TV with a built-in satellite receiver. The 8K content broadcast via ASTRA 28.2 degrees East orbital slot is unveiled at the invite-only two-day event that is held in Luxembourg, with Spin Digital providing the expertise to encode high quality 8K signals, SES the bandwidth to broadcast the signal, and Samsung the 8K flat screen TV to receive and decode the broadcast signal directly. The 8K content, with 7680x4320 pixels at 50 frames/s, is encoded by Spin Digital using its HEVC encoder at a bit rate of 70 Mbps for broadcast-grade quality, while the transmission is carried out by SES on a single 33 MHz transponder using DTH broadcast parameters. The 82" Samsung 8K Q950RB QLED production model TV receives this signal directly, and is using DVB-S2 transmission parameters specifically for this demo. This Samsung flagship TV features a 4000 Nits peak luminance, an 8K-compatible HEVC 50/60 fps video decoder, the latest HDMI interface and is capable of displaying High Dynamic Range (HDR) content. The TV will soon be available across Europe.

Discovery Extends Partnership with MX1 for Media Services and ASTRA Satellite Capacity

May 15, 2019 - MX1, a global solutions provider of media services and a wholly-owned subsidiary of SES, announced that Discovery Deutschland, a TV and digital media broadcast station based in Munich, Germany, will use MX1's managed media and distribution services to deliver an eighth German channel, HOME & GARDEN TV (HGTV), which will be available to viewers from 6 June 2019. Discovery Deutschland has been relying on MX1 services and capacity on SES's ASTRA satellites for seven of its German TV channels. For this eighth and brand-new channel, MX1 is delivering fully managed playout, including advanced graphics, uplink, and distribution services. The free-to-air SD channel is distributed via SES's ASTRA 1KR satellite at the prime orbital position of 19.2 degrees East, which reaches over 118 million homes across Europe.

EchoStar to Transfer BSS Business to DISH

May 20, 2019 - EchoStar Corporation announced that it executed an agreement with DISH Network Corporation to transfer to DISH the portion of its EchoStar Satellite Services business that manages and provides broadcast satellite services primarily to DISH and its subsidiaries (BSS Business). EchoStar shareholders will receive 22,937,188 shares of DISH Class A common stock upon consummation of the transaction. The BSS Business includes the business of EchoStar that manages and provides broadcast satellite services to DISH and its subsidiaries and DISH Mexico, S. de R.L. de C.V. It also provides telemetry, tracking and control services to satellites owned by DISH and a portion of EchoStar's other businesses. The transaction will also include the products, assets, licenses and technology, and the business operations, revenues, billings, liabilities and operating activities, primarily related to those businesses and certain other EchoStar real estate properties.

New Access to Premium Local TV Channels Enabled via SES Satellites

May 21, 2019 - Nigeria's latest free-to-air (FTA) local channel bouquet, "PREMIUM.FREE", has enabled local television broadcast audiences access to 13 new premium channels which are custom-made for African viewers. These include multinational language channels like Cinema Hausa, and popular African lifestyle channels such as True African. Delivered via SES satellites, this innovative channel bouquet is supplied by AfricaXP, the leading independent African network, which is well-known for its compelling Nollywood catalogue and longstanding partnerships with prominent West African producers. It is this

blend of premium African programming with top-flight international content across a diverse range of themes from sports to movies, telenovelas, kids, factual, reality and lifestyle programming, which really sets PREMIUM.FREE apart from other channel bouquet offerings on the market. SES reaches over 9 million Direct-to-Home households across West Africa from its orbital position of 28.2 degrees East. Those households with existing FTA set-top boxes (STBs) will be able to start watching the new channels on their existing STBs for free.

Canal Algeria is Available on Arabsat-5C with Globecast Developed Solutions for DTH over Africa

May 24, 2019 - Arabsat announced that Canal Algeria is now available on Arabsat-5C, the leading Arabic satellite platform for Direct-To-Home services over Africa. Canal Algeria is an Algerian French-speaking public television channel, owned by EPTV (Algerian Public Television), who also owns A3 (available on BADR-6), Terrestrial TV, Tamazight TV and Coran TV. Canal Algeria broadcasts its programs 24/7 via different platforms all over the world. Globecast is expanding its longstanding relationship with Arabsat, providing the technical broadcast solutions needed to deliver Canal Algeria across Africa. Arabsat-5C at 20° East is designed to serve the African market, matching the specific technical requirements with the growing demand across the continent. Arabsat -5C has a huge footprint, equipped with an innovative, powerful C-band beam which covers 100 per cent of African satellite TV households and needs only the minimum required dish size to receive its channels.

Ivory Coast Accelerates Digital Migration with SES

May 28, 2019 - Ivory Coast's public broadcasting company, the Société Ivoirienne de Télédiffusion (SIDT), has selected SES as its digital partner in a major move to meet the country's 2020 deadline for switching over from analogue to digital broadcasting. Under this multi-year agreement, 60 analogue turned digital channels will be broadcast with brighter, sharper picture and better sound, via the SES-4 satellite at 22 degrees West. SES will be using the comprehensive coverage of SES-4 to ensure high service availability of bandwidth and to broadcast all channels via the Digital Terrestrial Television (DTT) infrastructure across Ivory Coast. These digital channels will then be available to all Ivorian television (TV) viewers who have a digital set-top box or an integrated digital TV with a built-in DTT decoder. In addition to using SES-4 to accelerate the digital switchover, the capacity leased on SES-4 for digital broadcasting will also be used to broadcast Radiodiffusion Télévision Ivoirienne (RTI), the state's public TV network, to fulfill its public service mission of providing local news and information to Ivorians.

Argosy Announces EMEA Partnership with Canare in Support of 4K and IP Transition

May 29, 2019 - Argosy, a leading international supplier of broadcast cables and infrastructure products, has announced that it has become one of pro audio and video manufacturer Canare's distributors in the EMEA region, ensuring that Canare patch panels, cable assemblies and connectors are readily available to their broadcast and AV customers. This partnership will support Argosy customers in their transition to IP production over SMPTE 2110 and to higher resolutions of 4K and beyond, with the help of Canare's newly developed 12G products. Canare, a Japanese company, has a strong presence across Asia, and many of Argosy's customers who undertake installation work within APAC are familiar with Canare's quality and reputation.

LAUNCH / SPACE

China Plans to Launch Carrier Rocket at Sea

May 1, 2019 - China plans to launch a Long March-11 carrier rocket at sea this year, which is expected to lower the cost of entering space. The rocket has been named "CZ-11 WEY" under an agreement between the China Academy of Launch Vehicle Technology, China Space Foundation and a Chinese automobile producer. China's first seaborne rocket launch is scheduled for mid-2019 in the Yellow Sea, said Jin Xin, deputy chief commander of the rocket, at a press conference of the China Aerospace Science and Technology Corporation earlier this year. A seaborne launch has many advantages over a land launch. For instance, the launch site is flexible and falling rocket remains pose less danger. Using civilian ships to launch rockets at sea would lower launch costs and give it a commercial edge, said experts. The seaborne launch technology will help China provide launch services for countries participating in the Belt and Road Initiative. The Long March-11, with a length of 20.8 meters and a takeoff weight of about 57.6 tonnes, is the only rocket using solid propellants among China's new generation carrier rockets. It has a relatively simple structure and can be launched in a short time. The rocket can carry a payload of up to 350 kg to a

sun-synchronous orbit at an altitude of 700 km and 700 kg to a low-Earth orbit at 200 km. It is mainly used to carry small satellites, and can take multiple satellites into orbit at the same time.

CGI and Thales Alenia Space Sign Contract for Secure Galileo Satellite Navigation Services

May 2, 2019 - CGI has signed an agreement with Thales Alenia Space France to enhance and maintain security software for the Galileo satellite navigation system. Valued at approximately 14 million euros, the contract will last until the end of 2020. CGI experts are working on this strategic project from Rotterdam and Toulouse. CGI will improve the functionality, robustness and reliability of Galileo's ground infrastructure, as well as enhance and maintain software for its Public Regulated Service Key Management Facility (PKMF). The Public Regulated Service (PRS) is one of the key features that distinguishes Galileo from other satellite navigation systems. It ensures that only government-authorized entities have access to Galileo's secure PRS signal that meets strict security standards in areas such as defense, law enforcement, customs, etc.

PTScientists and ArianeGroup Sign MoU for Future Moon Missions

May 2, 2019 - Robert Boehme, PTScientists CEO and Pierre Godart, ArianeGroup CFO, will sign the memorandum of understanding between the two companies in the presence of Thomas Jarzombek, Member of the German Parliament (Coordinator of the Federal Government for Aerospace), Klaus-Peter Willsch, Member of the German Parliament (Chairman of the Aerospace Parliament Group) and David Parker, ESA Director for Human Spaceflight and Robotic Exploration. The memorandum of understanding will govern the cooperation between the two companies for future European lunar missions such as ESA's planned ISRU mission and beyond.

Cloud Constellation Selects LeoStella to Manufacture the SpaceBelt Constellation

May 2, 2019 - Cloud Constellation Corporation selected LeoStella to manufacture the SpaceBelt satellite constellation. Cloud Constellation's SpaceBelt Data Security as a Service (DSaaS) offers secure, global managed network services and cloud data storage in space to enterprise, government and military organizations. Unlike the low Earth orbit (LEO) mega constellations, SpaceBelt's patented architecture has the distinct advantage that a constellation of only ten satellites are required in LEO which greatly reduces the cost, complexity and time to market. Seattle-based LeoStella is a state-of-the-art small satellite design and manufacturing company, revolutionizing constellation construction by building smallsats cost-effectively and at scale. Founded as a joint venture between Spaceflight Industries and Thales Alenia Space, the company was created to meet the growing demand for efficient satellite design and manufacturing for the growing number of constellations. By removing the barriers of building satellite constellations, LeoStella is helping organizations and markets change the world.

Rocket Lab Successfully Launches Three R&D Satellites to Orbit for the U.S. Air Force

May 5, 2019 - Rocket Lab Electron launch vehicle successfully lifted off from Launch Complex 1 on New Zealand's Mahia Peninsula on 5 May 2019. The STP-27RD mission launched three research and development satellites for the DoD Space Test Program that will demonstrate advanced space technologies, including a satellite to evaluate new ways of tracking space debris. The mission is Rocket Lab's second for 2019 and took the total number of satellites deployed to orbit by the company to 28. Approximately 54 minutes after lift-off, the Electron launch vehicle's Kick Stage successfully deployed the three payloads to their designated orbits. The Space Plug and Play Architecture Research CubeSat-1 (SPARC-1) mission, sponsored by the Air Force Research Laboratory Space Vehicles Directorate (AFRL/RV), is a joint Swedish-United States experiment to explore technology developments in avionics miniaturization, software defined radio systems, and space situational awareness (SSA). The Falcon Orbital Debris Experiment (Falcon ODE), sponsored by the United States Air Force Academy, will evaluate ground-based tracking of space objects. Harbinger, a commercial small satellite built by York Space Systems and sponsored by the U.S. Army, will demonstrate the ability of an experimental commercial system to meet DoD space capability requirements.

Thales Alenia Space and Maxar Consortium Achieve Significant Milestone for Telesat's LEO Satellite Constellation

May 6, 2019 - Thales Alenia Space and Maxar Technologies have completed an important milestone for the Telesat LEO constellation. The consortium has now significantly advanced their detailed, low-risk designs for the complete LEO system, including system optimization, requirements development, engineering trade-offs and technology prototyping to establish mature and compelling designs for Telesat LEO's space,

ground and user terminal segments. As previously announced, Telesat selected the consortium of Thales Alenia Space and Maxar, as one of two contractors for its LEO system design phase to design an end-to-end communications system, including satellites, landing stations, user terminals, operations centers, and ground network. In January, the consortium, led by Thales Alenia Space, announced the success of the System Requirements Review. The Thales Alenia Space / Maxar design for Telesat LEO is based on the combined companies' proven experience, industrial capability and a strong supplier base for fully integrated communications satellite systems, including payload antenna design, on-board processing, optical inter-satellite links and LEO satellite production. This milestone is the result of fruitful and efficient teamwork between the two commercial companies. The operations of DigitalGlobe, SSL and Radiant Solutions were unified under the Maxar brand in February; MDA continues to operate as an independent business unit within the Maxar organization.

Hisdesat Appoints Thales Alenia Space and Airbus to Build Two SPAINSAT NG Satellites

May 6, 2019 - A four co-primers consortium formed by Thales Alenia Space in Spain and France, and Airbus in Spain and France, has been selected by Hisdesat Servicios Estratégicos S.A. (Spanish Governmental Satellite Operator), for two SPAINSAT NG satellites for governmental communications that will replace the existing SPAINSAT and Xtar-EUR satellites. Airbus will act as "lead partner" of the consortium. The SPAINSAT NG programme includes two satellites, SPAINSAT NG I and II which will be situated in different geostationary orbital slots to operate in X, military Ka and UHF bands. The first of these New Generation SPAINSAT satellites will be launched in 2023 guaranteeing the continuity of the secure communications services to the Spanish Ministry of Defense and Governmental Agencies using the current fleet. SPAINSAT NG will provide coverage on a wide area of the world ranging from the United States and South America to the Middle East, including Africa and Europe, and till Singapore in Asia.

Airbus to Build Multimission Satellite for MEASAT

May 6, 2019 - Airbus has been selected by MEASAT Global Berhad (MEASAT), the leading Malaysian operator, to build MEASAT-3d, a new multimission telecommunications satellite to replace capacity and augment its core business in Malaysia, Asia, Middle East and Africa. Positioned at 91.5°E collocated with MEASAT-3b, also built by Airbus, MEASAT-3d will deliver improved performances to progressively replace MEASAT-3 and MEASAT-3a, supporting Asia's premium DTH (direct to home) video distribution. Planned to be launched in 2021, MEASAT-3d will provide C and Ku-bands capacity for DTH, video distribution and telecommunication services. The new HTS Ka-band mission features multiple user spot beams optimized to deliver high speed broadband communications over Malaysia to bridge the digital divide in the country. It will also carry an L-band navigation hosted payload for the Korea Augmentation Satellite System (KASS) for KTSAT. MEASAT-3d is based on Airbus' proven and highly reliable Eurostar E3000 satellite platform. Planned for more than 15 years of operation, MEASAT-3d is designed to have an electrical power of 12kW.

Ariane 6 Series Production Begins with First Batch of 14 Launchers

May 6, 2019 - Following the initial institutional and commercial launch orders for Ariane 6 obtained by Arianespace since the autumn of 2017, and the resolution of the ESA Council on April 17, 2019, related to the rocket's exploitation framework, ArianeGroup is starting to build the first series-production batch of 14 Ariane 6 launchers. These 14 launchers, scheduled to fly between 2021 and 2023, will be built in ArianeGroup plants in France and Germany, as well as in those of its European industrial partners in the 13 countries taking part in the Ariane 6 program. In parallel, ArianeGroup is proceeding with manufacturing of the model to be used for ground qualification tests on the launch pad in French Guiana, as well as the Ariane 62's first flight vehicle, for which the inaugural launch is planned for 2020.

Rocket Crafters Chooses RUAG Space as Preferred Supplier

May 8, 2019 - Rocket Crafters, a manufacturer of advanced rockets operating from the Florida Space Coast, and RUAG Space, a leading independent product supplier for spacecraft, electronics and launchers, signed a Memorandum of Understanding (MOU) creating a new supplier agreement in the small launcher market. Rocket Crafters will collaborate with RUAG on the design, development and procurement of a sounding rocket guidance and navigation system, nose cone and aeroshell in order to support an initial test flight, with the goal to achieve reliable, cost effective and fast time-to-market. In addition, both parties recognize future business prospects based on Rocket Crafters' Intrepid launch vehicle to serve the increasing world market launch service demand for small satellites launch. Rocket Crafters has identified RUAG Space as the ideal partner for carbon composite structure for payload fairings and aeroshells, as well as RUAG's avionics, payload adapters and separation systems for future missions of Rocket Crafters planned Intrepid-

1 small satellite launch vehicle.

Arianespace to Launch the ESAIL Satellite for exactEarth on Vega's SSMS POC Flight

May 9, 2019 - Arianespace announced that it has been selected by exactEarth to launch the ESAIL satellite using a Vega as part of the launcher's Small Spacecraft Mission Service (SSMS) Proof of Concept (POC) flight. It is the final contract signed by Arianespace for this POC flight, which is now completely booked with 42 payloads onboard. The ESAIL satellite will be launched in a Sun-synchronous orbit (SSO) at an altitude of 515 km. on a Vega SSMS rideshare flight in 2019 from the Guiana Space Center, Europe's Spaceport in Kourou, French Guiana. exactEarth is a leading provider of global AIS (Automatic Identification System) maritime vessel data for ship tracking and maritime situational awareness solutions. Using world-leading satellite vessel detection technology – combined with the most advanced constellation of AIS satellites – exactEarth delivers the highest quality real-time information to customers around the world.

Blue Origin is going to the Moon

May 9, 2019 - Blue Origin has announced the Blue Moon lunar lander, which is capable of taking people and payloads to the lunar surface. Blue Origin announced Blue Moon, its large lunar lander capable of delivering multiple metric tons of payload to the lunar surface based on configuration and mission. The cargo variant revealed today can carry 3.6 metric tons to the surface. We have also designed a variant of the lander that can stretch to be capable of carrying a 6.5-metric-ton, human-rated ascent stage. Blue also announced it can meet the current Administration's goal of putting Americans on the Moon by 2024 with the Blue Moon lunar lander. The Blue Moon lunar lander will be powered by the BE-7 engine, a new addition to Blue Origin's family of engines. The BE-7's 40 kN (10,000 lbf) thrust is designed for large lunar payload transport. The engine's propellants are a highly-efficient combination of liquid oxygen and liquid hydrogen. The BE-7 will have its first hotfire this summer. The engine will be available for sale to other companies for use in in-space and lander applications.

FCC Approves Theia Satellite Constellation

May 9, 2019 - The Federal Communications Commission approved an application by Theia Holdings A, Inc., to construct, launch, and operate a satellite constellation that will be used to provide high-resolution earth-imaging data in the United States and globally. Theia's proposed satellite system is comprised of 112 satellites operating in non-geostationary satellite orbit, and the Commission granted Theia authority for those satellites to use frequencies in the Ka (20/30 GHz), Ku (11/14 GHz), V (40/50 GHz) and the 1215-1300 MHz bands to provide fixed-satellite and earth exploration satellite services. The Memorandum Opinion, Order and Authorization adopted today outlines the conditions under which Theia is authorized to provide service using its proposed NGSO satellite constellation. Specifically, the Order specifies conditions to ensure compliance with Commission rules and to protect other operations in the requested frequency bands. Over the past eighteen months, the FCC has approved requests by OneWeb, SpaceX, and other companies proposing NGSO constellations to provide broadband services using satellite technology that holds promise to expand Internet access, particularly in remote and rural areas across the country and around the world.

Rocket Lab to Launch Rideshare Mission for Spaceflight

May 10, 2019 - Rocket Lab announced that its next flight will launch multiple spacecraft on a mission procured by satellite rideshare and mission management provider, Spaceflight. The launch window will open in June, with launch taking place from Rocket Lab Launch Complex 1 on New Zealand's Māhia Peninsula. The mission is Rocket Lab's seventh Electron launch overall and the company's third for 2019, continuing Rocket Lab's average monthly launch cadence. The flight follows dedicated missions launched for DARPA and the U.S. Air Force's Space Test Program in the first months of 2019. The mission is named 'Make it Rain' in a nod to the high volume of rainfall in Seattle, where Spaceflight is headquartered, as well in New Zealand where Launch Complex 1 is located. Among the satellites on the mission for Spaceflight are BlackSky's Global-4, two U.S. Special Operations Command (USSOCOM) Prometheus and Melbourne Space Program's ACRUX-1.

DARPA awards Maxar Technologies second contract for Geospatial Cloud Analytics Hub

May 15, 2019 - Maxar Technologies has been awarded a follow-on contract valued at \$4.3 million by the U.S. Defense Advanced Research Projects Agency (DARPA) to test its Geospatial Cloud Analytics (GCA) Hub. The GCA Hub is an unclassified environment with multi-source content that enables military users to

leverage machine learning to extract insights about the planet at scale and make critical decisions for projects like predicting food shortages, political unrest and illegal, unreported and unregulated (IUU) fishing. This raises Maxar's total award amount for the GCA Hub to \$7.5 million. Under its first GCA Hub contract awarded by DARPA in 2018, Maxar built the secure, cloud-based GCA Hub on the foundations of its Geospatial Big Data (GBDX) platform, a commercially-developed, cloud-based analytics platform. Maxar integrated 18 geospatial data sources, including its 100-petabyte high-resolution optical satellite imagery library, RADARSAT-2 synthetic aperture radar (SAR) data and SAR data curation and processing tools, automatic identification system (AIS) data, open-source and commercial data provided by the company's growing list of content ecosystem partners. These datasets help users detect features and changes on the surface of the Earth faster and more accurately. In addition, Maxar built new analytic tools to streamline and enhance the creation of machine learning training data sets. This builds on the company's rich history of providing curated, open-source data sets for machine learning challenges, such as SpaceNet, xView and IARPA FMoW.

China Develops New-Generation Rockets for Upcoming Missions

May 16, 2019 - China has developed a number of new-generation carrier rockets to take the country's space industry to the next level. The Long March-7 is a medium-sized carrier rocket with high reliability and safety. It is designed to launch cargo vehicles during the construction of China's manned space station project and meet the long-term demand for upgrading manned carrier rockets in service. The rocket is 53.1 meters long with a core-level diameter of 3.35 meters, four 2.25m-diameter boosters and a takeoff weight of 596 tonnes. It has a lift capability of sending 13.5 tonnes of payload to low-Earth orbit, or 5.5 tonnes of payload to sun-synchronous orbit. The Long March-7 will become the main carrier for China's future space missions. The Long March-9 rocket will be China's largest heavy-lift carrier rocket. It will be capable of lifting 50 to 140 tonnes into low-Earth orbit, which is key to China's lunar exploration, deep space explorations, space infrastructure construction and utilization of space resources. The Long March-11 is a four-stage, solid-fueled rocket that is used to launch payloads to low-Earth and sun-synchronous orbits. It is 20.8 meters long, with a maximum diameter of two meters and a takeoff weight of 58 tonnes. Since its maiden flight on Sept. 25, 2015, the Long March-11 rockets have been launched six times, sending 25 satellites into space. The Long March-11 could support emergency communications and remote sensing observations after natural disasters and incidents. It is also designed for commercial use to meet the growing needs of launching micro satellites. China is planning its first sea-launch of satellites carried by a Long March-11 rocket this year.

China Launches New BeiDou Navigation Satellite

May 18, 2019 - China sent a new satellite of the BeiDou Navigation Satellite System (BDS) into space from the Xichang Satellite Launch Center in Sichuan Province on May 17. Launched on a Long March-3C carrier rocket, it is the fourth BDS-2 backup satellite and the 45th satellite of the BDS satellite family. After being sent to the geostationary earth orbit and in-orbit tests, it will be connected to the BDS to provide users with more reliable services and enhance the stability of the constellation. The BDS-2 system has provided stable and reliable service since it went into operation, and its positioning accuracy has improved from 10 meters to six meters. The launch was the 304th flight mission for the Long March series of carrier rockets.

Arianespace to Orbit Spanish SEOSat/Ingenio Earth Observation Satellite

May 20, 2019 - Arianespace and the European Space Agency (ESA/Earth Observation Programs directorate) announced the signature of a launch services contract with a Vega launcher for SEOSat (Spanish Earth Observation SATellite) for Spain's Center for Development of Industrial Technology (CDTI - Centro para el Desarrollo Tecnológico Industrial). SEOSat/Ingenio is a high-resolution optical imaging mission of Spain - the flagship mission of the Spanish Space Strategic Plan. It will be launched along with the French CNES space agency's TARANIS satellite aboard a Vega launch vehicle in the first semester of 2020 from the Guiana Space Center, Europe's Spaceport in French Guiana (South America). The satellite will have a mass at liftoff of approximately 840 kg. and will be placed in Sun-synchronous orbit at an altitude of about 670 km. The SEOSat/Ingenio mission is devoted to providing high resolution multispectral land optical images to different Spanish civil, institutional and government users, and potentially to other European users in the framework of the European Copernicus program and GEOSS (Global Earth Observation System of Systems). The overall mission objective is to provide information for applications in cartography, land use, urban management, water management, environmental monitoring, risk management and security. The SEOSat/Ingenio spacecraft is the first built by an industrial consortium of the Spanish space sector companies led by Airbus Defense and Space/Spain.

Airbus Signs MOU with Hellenic Space Agency for Future Space Cooperation

May 21, 2019 - Airbus and the Hellenic Space Agency have signed a Memorandum of Understanding (MOU) covering future space cooperation. The MOU will focus on Earth observation, space exploration and future growth opportunities including software research and space policy. Established in 2018, the Hellenic Space Agency (HSA) is Greece's national body responsible for space and is part of the Ministry of Infrastructure, Transport and Networks. Another key element of the MOU is to share best practices in encouraging future generations to be involved in space, ranging from promoting STEM (Science Technology, Engineering and Maths) subjects to sponsoring research activities relating to space. The MOU will also look to encourage exchange of personnel between Airbus and HSA to enhance knowledge sharing and understanding. These will include educational initiatives, space applications, research and technology, space policy, law and regulation, and explore long term possible cooperation on space activities. This agreement between Airbus and HSA follows an MOU that was signed between HSA and the UK Space Agency and announced in January 2019.

PSLV-C46 Successfully Launches RISAT-2B

May 22, 2019 - India's Polar Satellite Launch Vehicle (PSLV-C46) successfully launched RISAT-2B satellite from Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota. This was the 72nd launch vehicle mission from SDSC SHAR, Sriharikota and 36th launch from the First Launch pad. PSLV-C46 lifted-off at 05:30 Hrs (IST) from the First Launch Pad and injected RISAT-2B into a orbit of 556 km, about 15 minutes and 25 seconds after lift-off. After separation, solar arrays of RISAT-2B were deployed automatically and ISRO Telemetry Tracking and Command Network (ISTRAC) at Bengaluru assumed control of the satellite. In the coming days, the satellite will be brought to its final operational configuration. RISAT-2B is a radar imaging earth observation satellite weighing about 615 kg. The satellite is intended to provide services in the field of Agriculture, Forestry and Disaster Management.

SpaceX Rocket Brings First Batch of 60 Internet Satellites into Space

May 24, 2019 - SpaceX launched its first batch of 60 Starlink satellites into space on May 23, in an effort to build a 12,000-strong satellite network capable of providing broadband internet services. The Falcon 9 rocket, carrying the satellites, was lifted off at 10:30 p.m. Eastern Daylight Time (1430 GMT) from Space Launch Complex 40 at Cape Canaveral Air Force Station, Florida. SpaceX designed Starlink to connect end users with low-latency and high-bandwidth broadband services by providing continual coverage around the world using a network of thousands of satellites in low Earth orbit.

Russia Launches Glonass Navigation Satellite

May 27, 2019 - The Russian Aerospace Force successfully put a Glonass-M navigation satellite into orbit on Monday, the Russian Defense Ministry said in a statement. A Soyuz-2.1B carrier rocket blasted off from northwest Russia's Plesetsk Cosmodrome at 9:23 a.m. Moscow time (0623 GMT), and the satellite has been working normally in space. Glonass is a global navigation system operated by the Russian Aerospace Force for both military and civilian use.

Glavkosmos and ILS: Joint Work on the International Market

May 30, 2019 - Glavkosmos and the American company International Launch Services (ILS) intend to develop collaboration. Glavkosmos and its subsidiary GK Launch Services work closely with ILS and provide all the necessary support in promoting, primarily, launch services using the Proton launch vehicle. According to Glavkosmos, closer coordination with ILS will facilitate the promotion of the Russian space products to the international market; will help a better understanding of the needs and expectations of a customer. The Russian-American Joint Venture, International Launch Services (ILS), has the exclusive right to market the launch services with the use of the Proton launchers and those of the Angara family on the world market. Since 2008, Khrunichev State Research and Production Space Center, a designer and manufacturer of the Proton and the Angara launch vehicles, has been a controlling stockholder of ILS. To make the foreign trade of the ILS joint venture more efficient, representatives of Glavkosmos have been introduced into its Board of Directors.

Inmarsat Orders 3 New GX Satellites from Airbus

May 30, 2019 - Airbus has signed a contract with Inmarsat, the world leader in global mobile satellite communications, to design, manufacture and build the first in their next generation of geostationary Ka-band satellites, Inmarsat GX7, 8 & 9. The three satellites are the first to be based on Airbus' new OneSat product line, which is fully reconfigurable in orbit. Featuring on board processing and active antennas, the

three Ka-band spacecraft will be able to adjust their coverage, capacity and frequency. They will deliver power and bandwidth dynamically in real-time to adapt to Inmarsat's requirements to provide HTS (High Throughput) broadband connectivity for the mobility market. Airbus' highly innovative OneSat is based on a standard, modular and design-to-manufacture approach, and can be delivered more quickly than existing telecommunications satellites.

Yamal-601 Satellite in Orbit Designed and Built by Thales Alenia Space for Gazprom Space Systems

May 30, 2019 - The Yamal-601 telecommunications satellite, designed and built by Thales Alenia Space for the Russian operator Gazprom Space Systems (GSS), was successfully launched from the Baikonur Cosmodrome in Kazakhstan by a Proton M/Breeze M rocket. The satellite will provide fixed communications, broadcast and Internet access services. Thales Alenia Space was program prime contractor, in charge of satellite design, production and turnkey delivery, along with control software for the ground segment. Based on the Thales Alenia Space Spacebus 4000C4 platform, Yamal-601 is fitted with 18 C-band transponders, to cover Russia, neighboring CIS countries, the Middle East and part of Southeast Asia, and a Ka-band payload with 32 spotbeams for the Western part of Russia as well as West Siberia. It weighed 5.4 metric tons at launch, with 7.3 kW of payload power and a design life exceeding 15 years. Yamal-601 will replace Yamal-202 at the 49°E orbital position and provide extended coverage.

EXECUTIVE MOVES

Pascal Homsy Named EVP of Thales Alenia Space's Telecommunications Business Line

May 21, 2019 - Pascal Homsy, 54, has been appointed Executive Vice President of Thales Alenia Space's Telecommunications Business Line, effective May 13, 2019. He succeeds Bertrand Maureau, who takes on new responsibilities within the Thales Group. From 1994 to 1998, Homsy served as Area Sales Manager, Asia-Pacific, at Lucent Technologies. He subsequently moved up the ranks within the Alcatel-Lucent Group, where he held positions as Consultant, Customer Strategies; Asia Sales Director; Vice President, Local Multipoint Distribution Systems Business Unit; Vice President, Voice and Services Business Unit, Fixed Switching Systems; Vice President Sales, France Telecom/Orange global account; and CEO of Alcatel-Lucent France for more than three years. He was also Vice President Sales, West and South Europe, in charge of France and the FT/Orange account; and President of the Strategic Industries Segment. In April 2015, he was appointed President of the Europe and MEA Regional Business Centre, Software and Services, for Nokia/Alcatel-Lucent. From 2017 until this latest appointment, Pascal Homsy served as Global Head of Sales, Big Data and Security Division for ATOS (Bull SAS).

KVH Appoints Ken Loke as Vice President for the Asia-Pacific Region

May 22, 2019 - KVH Industries has announced that Ken Loke has been named Vice President – Asia Pacific, to direct all initiatives for KVH in this important region. Loke has extensive experience in satellite and managed services with top companies active in the telecommunications and maritime industries. KVH provides connectivity solutions for the maritime market, including global mini-VSAT Broadband services used by thousands of vessels worldwide. Prior to joining KVH, he held the positions of chief commercial officer and chief executive officer for Eutelsat – Asia Pacific, and senior vice president for General Electric Satellite for North Asia, Southeast Asia, and the Oceania region.

David M. Tolley to Join Intelsat as Executive Vice President and Chief Financial Officer

May 28, 2019 - Intelsat, S.A. announced the appointment of David M. Tolley as Executive Vice President and Chief Financial Officer, effective June 3, 2019. Tolley will report to Intelsat's Chief Executive Officer, Stephen Spengler, and oversee Intelsat's global finance organization. He will serve on Intelsat's Management Committee and be based in the company's U.S. administrative headquarters in McLean, Virginia. Tolley brings over 20 years of financial experience to Intelsat. He most recently served as the Chief Financial Officer of OneWeb where he led the global finance organization and served on the company's Executive Committee. Prior to OneWeb, Tolley served as a Senior Managing Director in the Private Equity Group at Blackstone where he led satellite services strategy and investing and served on the Private Equity Investment Committee. During that period, he was Chairman of the Board of Directors of NewSkies Satellites N.V. and led the public-to-private acquisition, re-IPO and ultimate divestiture of NewSkies to SES S.A. Prior to Blackstone, he was a Vice President at Morgan Stanley in the Investment Banking Division, where he provided banking and advisory services to established and emerging companies in the broader communications sector.

REPORTS

NSR Releases Wireless Backhaul & 5G via Satellite, 13th Edition

May 14, 2019 - NSR's *Wireless Backhaul & 5G via Satellite, 13th Edition* is based on long standing methodologies that have been validated and developed over the previous editions of the report. New in this edition, the report presents an assessment of the implications of 5G for the satellite industry. Furthermore, the research investigates the new Hybrid Networks applications and formulates different business cases for Satellite Backhaul and Hybrid Networks to understand the effects of key factors in Satellite's potential (Smallcells, capacity pricing, bandwidth requirements, traffic profile...).

Euroconsult Publishes First Research Report on Ground Segment Market

May 24, 2019 - According to Euroconsult's latest report, *Ground Segment Market Prospects: Part 1, Forecasts to 2028*, the commercial satellite ground segment market, including satcom applications, EO applications and user terminals for user applications, is going through significant expansion in terms of both capabilities and demand and will grow from \$264 million in 2018 to nearly \$360 million in 2028. The aggregated market value in the next decade is expected to achieve \$4 billion. The initial Euroconsult report covers only large gateways, while the second part of the report dedicated to user terminals will be published in several months.

UPCOMING EVENTS

Satellite Industry Forum 2019, June 17, Singapore, <https://asiavia.org/events/sif-2019/>

Over the past year, we have witnessed profound change in the satellite industry. Evolving customer needs and requirements have led to fast-paced innovation from manufacturers and operators alike. Join AVIA at the Satellite Industry Forum 2019 on 17 June at Four Seasons Hotel, Singapore to find out what trends the satellite industry will see play out this year. Expect to meet more than 230 attendees and hear from 45 thought leaders this June. For more information, visit www.aviasif.com. Enjoy 15% discount for APSCC members. Email vanessa@asiavia.org for any registration enquiries

ConnecTechAsia2019 Summit, June 18-20, Singapore, <https://www.connectechasia.com/the-summit>

ConnecTechAsia2019 Summit is the preferred conference in Asia for innovative sessions by technology's rising stars and thought-provoking conversations with fellow industry peers. This is your chance to be part of a connected ecosystem – think three packed days of inspiring keynotes, focused tracks and engagement sessions with decision makers, sectoral stakeholders and digital communities. A supercharged arena powered by strong thought leadership, the Summit is inspired by innovators and enablers, tech superstars and leading organisations at the forefront of digital disruption. Reimagine the entire business value chain and help shape tomorrow's digital societies at ConnecTechAsia2019 Summit! Register now!

Industry Briefing @ ConnecTechAsia 2019, June 18, Singapore, <https://apscc.or.kr/apscc-industry-briefing/>

Satellite Track @ ConnecTechAsia 2019 Summit, June 19, Singapore, www.connectechasia.com/

ConnecTechAsia2019 Summit is the preferred conference in Asia for innovative sessions by technology's rising stars and thought-provoking conversations with fellow industry peers. This is your chance to be part of a connected ecosystem – think three packed days of inspiring keynotes, focused tracks and engagement sessions with decision makers, sectoral stakeholders and digital communities. A supercharged arena powered by strong thought leadership, the Summit is inspired by innovators and enablers, tech superstars and leading organisations at the forefront of digital disruption. Reimagine the entire business value chain and help shape tomorrow's digital societies at ConnecTechAsia2019 Summit! Enter the promo code 'CTACONF02' when registering and enjoy a 15% discount off all passes. [Register for the Summit](#) now!

Small Satellite Conference, August 3-8, Logan, Utah, USA, www.smallsat.org/

World Satellite Business Week, September 9-13, Paris, France, <http://www.satellite-business.com/en>

IBC 2019, September 13-17, Amsterdam, the Netherlands, <https://show.ibc.org/>

IAC 2019, October 21-25, Washington DC, USA, www.iac2019.org

37th International Communications Satellite Systems Conference (ICSSC), October 29 – November 1, Okinawa, Japan, <http://www.kaconf.org/call4papersICSSC.php>

China Satellite 2019, October 30 – November 1, Beijing, China, www.china-satellite.org

Asia Video Summit 2019, November 4-6, Hong Kong, <https://asiavia.org/insight/events/>

Global MilSatCom 2019, November 5-7, London, UK, <https://www.smi-online.co.uk/defence/uk/global-milsatcom>

APSCC 2019 Satellite Conference & Exhibition, November 19-21, Bangkok, Thailand, <http://apscsat.com>

APSCC 2019 Youth Development Workshop, November 21, Bangkok, Thailand, <https://apscsat.com/workshop/>

Broadband India Forum, November 27-28, New Delhi, India, www.broadbandindiaforum.com
Broadband India Forum is organizing 5th International Summit - India SatCom 2019 on 27 & 28 November, 2019 at New Delhi. The conference would deliberate on Policy and Regulatory measures required to facilitate rapid and barrier free deployment of Next Gen Satellite communications technologies to achieve the objectives of Govt's flagship programme on Digital India.

Editorials and Inquiries

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About APSCC

APSCC is a non-profit, international organization representing all sectors of satellite and space-related industries. The aim of the organization is to exchange views and ideas on satellite technologies, systems, policies and outer space activities in general along with satellite communications including broadcasting for the betterment of the Asia-Pacific region. Conferences, forums, workshops, and exhibitions are organized through regional coordination with its members in order to promote new services and businesses via satellite as well as outer space activities. APSCC membership is open to any government body, public or private organization, association, or corporation that is involved in satellite services, risk management or associate fields such as data-casting, informatics, multi-media, telecommunications and other outer-space related activities with interests in the Asia-Pacific region. More information is available at www.apsc.or.kr.