

# APSCC Monthly e-Newsletter

## January 2021

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.apsc.or.kr](http://www.apsc.or.kr). To unsubscribe, send an email to [info@apsc.or.kr](mailto:info@apsc.or.kr) with a title "Unsubscribe."

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

### INSIDE APSCC

#### **APSCC 2021 Webinar Series: LIVE Every Tuesday 9AM HKI Singapore Time**

The most frequent and largest ongoing virtual conference in the Asia Pacific satellite community – the APSCC 2021 Webinar Series incorporates industry veterans, local players, as well as new market entrants in a single event to reach a wide-ranging audience. The APSCC 2021 Webinar Series continues to play a vital role in supporting the industry in the Asia Pacific region and beyond with a brand-new format, a lengthened timeline, and a potentially unlimited reach. Register now and get access to the complete APSCC 2021 Webinar Series with a single password. To register go to <https://apscsat.com>.

### SATELLITE BUSINESS

#### **MEASAT's High-Speed Satellite Broadband Prepaid Service "CONNECTme NOW" Reaches Key Milestone with 1,000 Sites Installed in Rural Malaysia**

December 30, 2020 - CONNECTme NOW, Malaysia's first prepaid satellite broadband WiFi Hotspot service by MEASAT Global Berhad ("MEASAT") has successfully been installed at Data Kakus. This marks the 1,000th installation in rural locations, providing communication and internet access to the rural communities nationwide. CONNECTme NOW launched in 2019, is satellite-based and available exclusively in Malaysia, delivered by employing Very Small Aperture Terminal (VSAT) and High Throughput Satellite (HTS) technology. The service is a sustainable prepaid business model for rural broadband connectivity. With no contract or fixed monthly charges, subscribers only pay for what they use with a Prepaid Access Code (PAC) Vouchers used at CONNECTme NOW community WiFi hotspots. CONNECTme NOW has been making waves in providing community-focused satellite broadband services with 30 Mbps broadband speeds to realize national broadband aspirations. Today, CONNECTme NOW is rapidly connecting the unconnected Rakyat with over 100,000 broadband connections nationwide for the Rakyat residing outside of 4G or terrestrial coverage, empowering rural communities to be part of the digital economy.

#### **Comtech Telecommunications Corp. Extends Term of Acquisition Agreement for UHP**

December 30, 2020 - Comtech Telecommunications Corp. ("Comtech") (NASDAQ: CMTL) reported today that Comtech and UHP Networks, Inc. ("UHP"), a leading provider of innovative and disruptive satellite ground station technology solutions, agreed to extend their agreement for Comtech's purchase of UHP, which was originally announced in November 2019, until February 28, 2021. UHP is based in Canada and has developed revolutionary technology that is transforming the Very Small Aperture Terminal (VSAT) market. Comtech Telecommunications Corp. designs, develops, produces and markets innovative products, systems and services for advanced communications solutions. The company sells products to a diverse customer base in the global commercial and government communications markets.

#### **Kymeta Announces \$30 Million Equity Investment by Hanwha Systems to Back Global Mobile Satellite-Cellular Connectivity**

December 28, 2020 - Hanwha Systems (HSC) has signed an agreement to invest \$30 million to back the development of Kymeta's next generation solutions, the Kymeta u8™ and Kymeta Connect™. The investment will further Kymeta's global market reach, accelerate production of Kymeta products and solutions, and improve the overall growth trajectory of the company. The funding is anticipated to support increased unit production, an enhanced customer experience, and the ongoing development of Kymeta's next generation capabilities. HSC aims to support Kymeta's metamaterial-based antenna technology and gain a foothold in the rapidly growing Low Earth Orbit (LEO) antenna market. With the capital investment and upon regulatory approvals, HSC will also receive a seat on the Kymeta Board of Directors. The

investment follows the commercial availability of Kymeta's next-generation antenna, terminal, and services on November 30, 2020. Kymeta offers seamless and uninterrupted mobile satellite-cellular connectivity to satisfy the overwhelming demand for communications on the move. Kymeta's new products and services offer a breakthrough in performance, ease of use, and affordability. The company anticipates that these solutions will further enhance its position in both commercial and government markets.

#### **Viasat Announces Definitive Agreement to Acquire RigNet**

December 21, 2020 - Viasat today announced it has entered into a definitive agreement to acquire RigNet, a leading provider of ultra-secure, intelligent networking solutions and specialized applications, in an all-stock transaction that values RigNet at an enterprise value of approximately \$222 million based on Viasat's share price as of the date of the agreement and RigNet's net debt at September 30, 2020. The acquisition will help to further accelerate Viasat's strategy to provide high-quality, ubiquitous, affordable broadband connectivity and communications to the hardest-to-reach locations around the globe. RigNet provides premier, global end-to-end, secure managed communications service and installation capabilities, along with digital transformation solutions, which will enable Viasat to quickly expand into new adjacent industries, including: energy, shipping, maritime, mining and additional enterprises. Acquiring RigNet will give Viasat direct access to over 650 customers and expand and diversify Viasat's commercial connectivity portfolio, providing Viasat an opportunity to more quickly enter adjacent industries. For example, by combining the strong gains in bandwidth efficiencies expected from the impending ViaSat-3 constellation and RigNet's portfolio of services, Viasat will become a leading vertically-integrated energy communications provider with deep domain and customer expertise.

#### **Hispasat Awards Gilat Order for Cellular Backhaul over Satellite to Extend Service to Rural Mexico**

December 21, 2020 - Gilat Satellite Networks has announced that Hispasat awarded it a multi-million dollar order to expand the existing SkyEdge II-c platform that Hispasat operates in Mexico and procure Capricorn VSATs for cellular backhaul (CBH) over satellite. Hispasat will use Gilat technology to extend the service of Altan La Red Compartida, the shared telecommunications network in Mexico, to over three million people in Mexico. Mexico's underserved rural population will benefit from 4.5G LTE coverage enjoying high-quality mobile broadband voice and data services. Altan is committed to promoting the vision of more and better-connected residents in Mexico. Due to difficult terrain, laying out land-based infrastructure is unfeasible or would require exorbitant costs. Therefore, satellite backhauling is the preferred method to provide fast coverage to the unserved and underserved population in Mexico, in regions where telecommunications can be crucial to open new opportunities for economic and social development. Gilat's SkyEdge II-c platform with its flagship VSAT, Capricorn, over Hispasat's Ka-band Amazonas 5 satellite, provides a most reliable quick solution to meet Altan's demanding requirements. Gilat's CBH platform provides a user experience similar to terrestrial technologies enabling MNOs to expand high-quality coverage to underserved areas of Mexico.

#### **Blue Canyon Technologies Announces Completion of Acquisition by Raytheon Technologies**

December 21, 2020 - Blue Canyon Technologies (BCT) announced today the completion of its acquisition by Raytheon Technologies, an aerospace and defense company that provides advanced systems and services for commercial, military and government customers worldwide. BCT now reports into Raytheon Intelligence & Space, a business of Raytheon Technologies. Blue Canyon's diverse portfolio of spacecraft has successfully enabled a broad range of missions and technological advancements for the U.S. Government and new space economy, further reducing the barriers of space entry. The acquisition allows BCT to grow its innovative product line to meet customer demand, including small satellite solutions including nanosatellites, microsatellites, ESPA-class satellites, and related technology. BCT is currently building more than 90 spacecraft for government, commercial and academic missions. BCT has seen significant growth over the past 12 months and recently opened its new 80,000-square-foot Satellite Constellation Factory headquarters and production facility in Lafayette, Colorado. BCT will continue to serve its customer base under the current business name and brand from their Boulder and Lafayette, Colorado facilities.

#### **OneWeb on Track to Launch Regional Commercial Service in 2021 and Global Service in 2022**

December 20, 2020 - OneWeb has confirmed the successful launch of all 36 satellites from a Soyuz launch vehicle, which began flight from the Vostochny Cosmodrome. This brings the total in-orbit constellation to 110 satellites, part of OneWeb's 648 LEO satellite fleet that will deliver high-speed, low-latency global connectivity. Lift-off occurred on 18 December at 12:26 GMT. OneWeb's satellites separated from the

rocket and were dispensed in nine batches over a period of 3 hours 52 minutes with signal acquisition on all 36 satellites confirmed. Less than a month since its acquisition by the UK Government and Bharti Global, OneWeb is quickly returning to full operations – hiring at a fast pace, restarting launches, continuing to build its ground station network, and pushing forward on user terminal development. The success of this launch will put OneWeb on track to offer global services to customers starting with the United Kingdom, Alaska, Northern Europe, Greenland, Iceland, the Arctic Seas, and Canada in 2021 with global service following in 2022.

#### **Lockheed Martin to Acquire Aerojet Rocketdyne**

December 20, 2020 - Lockheed Martin Corporation today announced it has entered into a definitive agreement to acquire Aerojet Rocketdyne Holdings for \$56 per share in cash, which is expected to be reduced to \$51 per share after the payment of a pre-closing special dividend. This represents a post-dividend equity value of \$4.6 billion and a total transaction value of \$4.4 billion including the assumption of net cash. As part of approving the transaction, Aerojet Rocketdyne announced a special cash dividend of \$5 per share to its holders of record of common stock and convertible senior notes (on an as-converted basis, and revocable at its option through the payment date) as of the close of business on March 10, 2021, and payable on March 24, 2021. With 2019 revenue of approximately \$2 billion, nearly 5,000 employees, and 15 primary operations sites across the United States, Aerojet Rocketdyne is a world-recognized aerospace and defense rocket engine manufacturer. Aerojet Rocketdyne has deep customer relationships and significant demand for its innovative technologies. The proposed acquisition adds substantial expertise in propulsion to Lockheed Martin's portfolio, and expands on the solid foundation built by Lockheed Martin and Aerojet Rocketdyne over many years. Aerojet Rocketdyne's propulsion systems are already a key component of Lockheed Martin's supply chain and several advanced systems across its Aeronautics, Missiles and Fire Control and Space business areas.

#### **Fighting Against the Digital Divide in Rural Africa with Satmotion and Alusat:**

December 17, 2020 - MSTelcom, a telecommunications company and leader in Satellite communication based in Angola is fighting against the digital divide in rural Africa, providing connectivity to rural Angola. MSTelcom has successfully deployed a large network across Angola supported by ST Engineering iDirect's Evolution platform. The deployment was surprisingly quick thanks to the Integrasys VSAT Auto-Commissioning tool, Satmotion Pocket, which enhances the delivery, commissioning, and maintenance of VSAT services, while also minimizing Operating Expenses (OPEX), time to market and interferences. The combination between the iDirect Evolution platform and Satmotion Pocket made the deployment not only an easier and more accurate process but also a high-quality result. MSTelcom is a company that is fully committed with the African market needs in the long-term; therefore, they also use Alusat, the VSAT Network Maintenance System, developed by Integrasys. This technology solution perfectly meets MSTelcom requirements, as they need to be efficient managing their remote sites and their SLAs. Alusat enables the possibility of maintaining VSAT remotely without visiting the installations and assuring an accurate performance over the time. The smart satellite network tool provider Integrasys works side by side with leading companies within the telecommunications and satellite industry, such as ST Engineering iDirect and MSTelcom, which are two benchmark companies in their respective businesses.

#### **Inmarsat Raises Start-ups to Certified Application Provider Status to Fast-track Decarbonisation Innovation in Maritime Market**

December 17, 2020 - Inmarsat has fast-tracked two innovative and established start-ups to Certified Application Provider status as part of this year's 'Decarbonising Shipping' initiative run by venture developer Rainmaking. The solutions, offered by VesselBot and PortXchange, have been accentuated by Rainmaking's Trade and Transport Impact initiative which seeks to harness the power of start-ups and advanced technologies to meet UN targets on greenhouse gas (GHG) emissions. VesselBot's 'Voyage TCE Optimization Decision Support System' software uses advanced AI models that draw on both market and vessel data to support operational decision-making and increase voyage profitability. In addition to providing speed and routing optimisation based on weather conditions, the solution offers bunker procurement recommendations using real time data and measures time charter equivalent (TCE) performance at prevailing hire rates. PortXchange is a digital collaboration platform for sharing real-time operational data from all local parties involved in a port call, standardising it, and creating a 'single point of truth' for shipping lines, carriers, agents, terminals, and port authorities to monitor all activities before and during the call. This data can be used to optimise port call efficiency to reduce CO2 emissions. Started at the Port of Rotterdam, the PortXchange platform is now used in ports across Europe, the UK and US.

### **KVH Partners with ioCurrents for KVH Watch Maritime IoT Solution**

December 17, 2020 - KVH Industries, Inc. announced that ioCurrents has joined the KVH Watch® Solution Partner program and will offer KVH Watch connectivity as part of its maritime services. The company is the creator of the MarineInsight™ platform, which uses machine-learning algorithms to support maritime maintenance and fuel optimization and has thus far relied on vessels' existing communications systems for data transfer. KVH Watch's dedicated connectivity will enable ioCurrents to use real-time data to provide customers with actionable insights and engage in real-time video troubleshooting sessions during the course of a sea voyage. KVH Watch is an IoT Connectivity as a Service solution that provides Flow, secure 24/7/365 machine-to-cloud satellite connectivity for remote monitoring of onboard equipment, plus the ability to perform on-demand Remote Expert Interventions using video, voice, or text via KVH's global HTS network. KVH Watch is designed for maritime equipment manufacturers, multichannel service providers, and shipyards seeking affordable monthly subscription-based connectivity that L-band and cellular services cannot deliver at deep sea.

### **Hughes Selected by OneWeb for Ground System Development and Production**

December 16, 2020 - Hughes Network Systems, LLC has been chosen by OneWeb, the Low Earth Orbit (LEO) broadband satellite communications company, to develop and manufacture essential ground system technology for the new LEO constellation. In a three-year contract valued at approximately \$250 million, Hughes will produce the gateway electronics for the OneWeb system as well as the core module that will be used in every user terminal. Designed by Hughes engineers, each OneWeb gateway is capable of 10,000 hand-offs per second, orchestrating handover and tracking of hundreds of gigabits of data across hundreds of beams and millions of users. Under an agreement with OneWeb prior to a restructuring in March, seven gateways had been installed with several more in various stages of production. Under the new agreement, Hughes has ramped up production on the gateway equipment and resumed testing on the installed systems. The agreement announced today also calls for Hughes to develop and manufacture the core module for the OneWeb user terminals. Designed by Hughes, the core module is uniquely adaptable across fixed as well as aeronautical and maritime mobility terminals, for either electronically or mechanically steered antennas. After filing for bankruptcy protection in March, OneWeb is now under ownership by a new consortium led by the U.K. Government and Bharti Enterprises and in which Hughes has agreed in principle to invest \$50 million.

### **IEC Telecom and Thuraya Revealed Orion Edge Virtual to Digitalise All Vessel Types**

December 16, 2020 - IEC Telecom and Thuraya introduced Orion Edge V (V for virtual), a state-of-the-art satcom system which offers an affordable VSAT-like experience over compact hardware. Digitalisation, previously reserved for large vessels, is now available for smaller crafts. At a time when some 60% of Middle Eastern companies report that they are now actively investing in digital technologies, digitalised vessels have a competitive advantage when it comes to adapting to challenges and optimising business opportunities. The United Arab Emirates is one of the top 20 most digitally advanced economies in the world, and in the maritime sector, many Middle East port operators are turning to the Internet of Things (IoT) to drive value in the digital economy, which is estimated to grow to a value of \$14 trillion by 2030. Until now these digital benefits have been unavailable to small and mid-sized vessels. However, IEC Telecom has joined forces with Thuraya, the leading global satellite operator, to bring affordable quality satcom technology to customers with limited onboard space via the cutting-edge Orion Edge V. The new solution enables a VSAT-like communications experience over L-band with access to a cloud-based system, offering a wide range of telecom services.

### **Vodafone and AST SpaceMobile Unveil Launch Plans for Space-Based Mobile Network**

December 16, 2020 - AST SpaceMobile, in partnership with Vodafone Group, unveiled plans to launch the first phase of its space-based commercial mobile communications service in 2023. The company has secured the necessary funding to take the venture to this next stage, which will cover the 49 largest countries in the equatorial regions. Vodafone wants to ensure that our customers are always connected and everyone benefits from a digital society. AST SpaceMobile will be the first service of its kind to connect standard mobile phones at 4G and 5G speeds using AST SpaceMobile's patented space-based network. Today, more than five billion mobile subscribers constantly move in and out of wireless coverage, and AST SpaceMobile's solution will fill these coverage gaps to enable people to stay connected whilst on the move. This is a significant breakthrough in helping to bring affordable mobile connectivity to more than half of the world's population that do not have internet on their phone. Traditional satellite systems require expensive specialized satellite phones or ground antenna systems, which is different to AST SpaceMobile's patented technology, where all that is needed is the phone in your pocket. The first tranche of AST

SpaceMobile's launch plans will involve the use of 20 satellites to offer seamless, low-latency mobile connectivity that can be accessed by approximately 1.6 billion people across a vast geographical region.

### **Ovzon Wins Renewed Contract from IGC**

December 16, 2020 - Ovzon has secured a renewed contract valued at a total of MUSD 14,6 with the US Department of Defense (US DoD), through the US service provider Intelsat General Corporation, IGC. The contract includes satellite capacity on a steerable beam and follows on an order for Ovzon's brand new T6 terminals for the same end customer. The contract covers 12 months, from mid December 2020 to mid December 2021, for the use of Ovzon's high data rate satellite communication services. Ovzon's current service offering, through leased capacity, will be significantly expanded with Ovzon's new satellite Ovzon 3 that will be launched in the end of 2021. Ovzon 3 will provide dramatically enhanced performance and functionality and is an important step to further revolutionize mobile broadband by GEO satellites, offering the highest bandwidth with the smallest terminals. Ovzon 3 is the first of a number of satellites planned for Ovzon's high-end global service.

### **Real-Time Maritime Emergency Service Launched by Iridium**

December 15, 2020 - Iridium Communications Inc. announced a historic achievement with the launch of the Iridium® Global Maritime Distress and Safety System (GMDSS) service. The system commenced operation on Friday, December 11th and with it, for the first time in history, Iridium has given seafarers a real-time emergency response and rescue service that works everywhere in the world. No other maritime emergency response system matches the coverage and real-time communications capability of the Iridium GMDSS service. The announcement came during a virtual press conference held featuring Iridium leadership, industry officials and experts. GMDSS is an internationally regulated service, governed by the International Maritime Organization's (IMO) Safety of Life at Sea (SOLAS) convention. It provides life-saving assistance to seafarers in distress and has required equipment on board more than 60,000 ships today, with many ships carrying multiple terminals. Iridium's service functions much like an international SOS button, however, unlike other options it includes as standard real-time emergency voice calling service, distress alert (SOS button) and maritime safety information with Iridium's unmatched truly global coverage.

### **Gogo AVANCE L3 Reaches 500 Business Aircraft Installations**

December 15, 2020 - The Gogo AVANCE L3 inflight connectivity system is now installed and flying on more than 500 business aircraft. AVANCE L3 delivers the benefits of the Gogo AVANCE platform to passengers and flight departments in a lightweight and much smaller form factor compared to other inflight connectivity systems with similar capabilities. AVANCE L3 allows users to customize their inflight experience based on their unique needs and can be installed on business aircraft of all types, but its size, cost and software-based scalable capabilities make it an ideal solution for smaller aircraft including turboprops and light jets. From the time AVANCE L3 launched in January 2018, more than 120,000 flights have been flown with the system onboard. Gogo has shipped nearly 700 AVANCE L3 systems to date.

### **Comtech Receives \$3.5 Million Contract for High-Power Amplifiers for Medical Application**

December 14, 2020 - Comtech Telecommunications Corp. announced today, that during its second quarter of fiscal 2021, its New York-based subsidiary, Comtech PST Corp., which is part of Comtech's Government Solutions segment, received a follow-on contract award for \$3.5 million for solid-state, high-power RF amplifiers from a major domestic medical instrumentation provider. These amplifiers are used by one of the world's largest supplier of image-guided radiotherapy (IGRT) and image-guided intensity modulated radiation therapy (IMRT) medical equipment, providing state-of-the-art solutions for the treatment of cancer. These advanced forms of treatment deliver versatile complex doses of radiation at greater speed and accuracy, thereby minimizing damage to surrounding healthy tissue.

### **SES Enhanced Regional Connectivity with New Satellite Ground Station in Dubbo, NSW**

December 14, 2020 - Pivotal and SES today announced they have signed an agreement to build a new satellite ground station at the Pivotal teleport in Dubbo, New South Wales. The ground station will support O3b mPOWER, SES's next-generation non-geostationary (NGSO) constellation and enable the delivery of enhanced telecommunication services to regional communities. The project, which has come about as part of the ongoing partnership between leading remote communication provider Pivotal and global content and connectivity solutions provider SES, will provide much needed high-performance and low-latency connectivity services across Australia, New Zealand and the Pacific Islands. The terabit-level constellation will deliver multiple gigabits-per-second beams of data services to customers, providing fibre-like

connectivity with more bandwidth and improved flexibility to remote and underserved regions across Australia and the Pacific islands. The Dubbo gateway will commence operations in the second half of 2021 and will track SES's O3b mPOWER constellation operating at Medium Earth Orbit (MEO) 8,000km away from Earth. This ground station will also support telemetry, tracking and commanding systems needed to control the satellites during the early stages of launch and complete integration with the Satellite Operations Centre. Pivotal has been hosting an O3b gateway since 2013, when SES's current MEO constellation was launched. Through the O3b gateway, SES has been instrumental in enabling the delivery of connectivity services to communities and the regional government entities of countries such as Papua New Guinea, Nauru and Federated States of Micronesia.

### **Gilat Equips Hundreds of Boats, Vessels and Cruise Ships with Satellite Communication**

December 14, 2020 - Gilat Satellite Networks Ltd., a worldwide leader in satellite networking technology, solutions and services, announces that Gilat was selected to equip hundreds of boats, vessels and cruise ships with satellite communication. Gilat's modems and transceivers successfully deployed on maritime vessels in Asia. Broadband internet is delivered via maritime terminals that are fully integrated with Gilat's VSATs and 4W transceivers. An excellent user experience is achieved with Gilat's SkyEdge II-c X-Architecture operating over China Satcom's HTS Ka-band network (ChinaSat-16) providing multiple switchovers between the satellite beams.

### **Intellian Poised to Deliver OneWeb User Terminals for 2021**

December 14, 2020 - Intellian has announced that it will be starting production of a wide range of dedicated user terminals for the global low-earth orbit (LEO) satellite communications provider OneWeb, ready for delivery in 2021 and beyond. OneWeb is focused on scaling its satellite constellation to begin commercial services starting at the end of next year. Coverage will extend to the UK, Alaska, Canada, Northern Europe, Greenland, Iceland, and the Arctic Seas. Intellian announced its partnership with OneWeb to build terminals for both the fixed enterprise and maritime markets in 2019 and OneWeb's keenly-awaited revival has enabled the two organisations to recommence their partnership. Intellian's agreement with OneWeb encompasses the production of a wide range of dedicated OneWeb user terminal types with a variety of antenna sizes. These terminals are designed to facilitate services and suit customer's application requirements across various sectors, including cellular backhaul, enterprise, rural broadband, telecommunications, telemedicine, schools, hospitals, agriculture, mining, government and maritime, including merchant shipping, oil and gas exploration, leisure and fishing. In addition, this partnership will allow current Intellian customers to utilise existing Intellian NX series terminals by incorporating an option to upgrade them to operate on OneWeb's LEO constellation in the future.

### **KVH Partners with TMS Maritime Solutions for KVH Watch Maritime IoT Solution**

December 14, 2020 - KVH Industries, Inc. announced today that TMS Maritime Solutions, a marine services expert that provides Internet of Things (IoT) sensors and applications to vessels, has joined the KVH Watch® Solution Partner program and will offer KVH Watch connectivity to enable real-time data transfers leading to actionable insights. KVH Watch connectivity will allow TMS's trained technicians to support clients remotely for preventive maintenance and on-demand troubleshooting, rather than waiting for vessels to come into port. KVH Watch is an IoT Connectivity as a Service solution that provides Flow, dedicated 24/7/365 machine-to-cloud satellite connectivity for remote monitoring of onboard equipment plus the ability to perform on-demand Remote Expert Interventions using video, voice, or text via KVH's global HTS network. KVH Watch is designed for maritime equipment manufacturers, multichannel service providers, and shipyards seeking affordable monthly subscription-based connectivity that L-band and cellular services cannot deliver at deep sea.

### **Viasat's 'No Speed Limit' Ka-band IFC Service Plans Now Available on Gulfstream G280 Aircraft**

December 10, 2020 - Viasat Inc. announced its Ka-band 'no speed limit' business aviation in-flight connectivity (IFC) service is now available on the super mid-size Gulfstream G280™ airframe. Viasat removed internet speed limits delivered to G280 aircraft, which will enable passengers and crew an opportunity to maximize their 'home-like connectivity' in-flight experiences - with the fastest available business aviation IFC download speeds in the super mid-size business jet segment. The new Ka-band service plans enable concurrent use of business-critical productivity and entertainment apps from video-conferencing, accessing cloud content and email to enjoying high-definition streaming services, live TV and more. Any Gulfstream G280 business jet equipped with Viasat's Ka-band Global Aero Terminal 5510 will receive a premium cabin internet experience over the most heavily traveled flight routes. Today, this terminal can communicate with Viasat's ViaSat-1, ViaSat-2 and KA-SAT satellite platforms, providing

internet connectivity from California to the Mediterranean. The terminal will be forward-compatible with Viasat's next-generation global satellite constellation, ViaSat-3, which will give G280 customers global connectivity, once the satellite system is fully launched and operational.

### **BSNL, in Partnership with Skylo, to Introduce Satellite-based Narrowband-IoT Network in India**

December 10, 2020 - BSNL, in partnership with Skylotech India, announced a breakthrough in satellite-based NB-IoT (Narrow Band-Internet of Things), in pursuance of the Prime Minister, Shri Narendra Modi's vision of a truly Digital India starting with fishermen, farmers, construction, mining and logistics enterprises. With this solution, India will now have access to a ubiquitous fabric of connectivity for millions of yet unconnected machines, sensors and industrial IoT devices. This new 'Made in India' Solution, which is indigenously developed by Skylo, will connect with BSNL's satellite-ground infrastructure and provide PAN-India coverage, including Indian seas. The coverage will be so vast that it will not leave any dark patch within the boundary of India, from Kashmir & Ladakh to Kanyakumari, and from Gujarat to the North East, including the Indian seas.

### **KVH Expands Maritime Network Coverage for Hudson Bay and North Atlantic**

December 10, 2020 - KVH Industries announced today that it has expanded its mini-VSAT Broadband<sup>SM</sup> HTS network coverage throughout Hudson Bay and the North Atlantic, including northeastern Canada, the Labrador Sea, Iceland, and Greenland. The expansion represents an addition of nearly 4 million square kilometers of Ku-band coverage to the 272 million square kilometers of global coverage that KVH's HTS network provides. The Hudson Bay coverage is particularly important to commercial fishing fleets who rely on satellite connectivity for operations and crew welfare. KVH launched its mini-VSAT Broadband HTS network in late 2017, and continually enhances the network with technological advancements. The network utilizes Intelsat's FlexMaritime service to deliver global multi-layered coverage, enabling vessels to see multiple HTS and wide beam satellites for maximum availability of broadband service.

### **Speedcast Launches Next Generation IoT Platform**

December 9, 2020 - Speedcast International Limited has launched a next generation Internet of Things (IoT) platform designed to simplify connectivity, provisioning, and device management through a single console. Designed for onshore and offshore customers, the next generation Speedcast IoT Center is deployed on Amazon Web Services (AWS) to increase computing power and interoperability with a variety of customer applications required by IoT solutions. At a time when travel and movement of personnel are restricted, a unified IoT platform that can monitor remote assets has become ever more critical to a company's successful operations. The Speedcast IoT Center is a feature rich, configurable IoT platform that allows customers to select enhanced, reliable, and cost-efficient connectivity options tailored to their needs. Customers can choose from cellular, satellite, and low-power wireless options, managing everything from a single interface. Once devices are deployed, Speedcast IoT Center monitors the health and status of all key elements of the IoT ecosystem, including the devices, the communications network, the IoT platform, and the end user application. IoT Center is protocol-agnostic and able to ingest real-time data from any device, then applying cloud-based translation and normalization of device data.

### **Orbcomm Introduces New Satellite as an Accessory for Asset Tracking and Monitoring Devices**

December 9, 2020 - Orbcomm announced that it has launched a new satellite as an accessory offering, which adds two-way, global satellite connectivity to Orbcomm's cellular asset tracking and monitoring devices, including new installs and currently fielded units, to create dual-mode capability for its transportation solutions. Orbcomm's satellite as an accessory features a satellite modem integrated with a state-of-the-art antenna to provide backup satellite connectivity where cellular networks are unavailable or unreliable, including areas with high network congestion. Orbcomm's low-profile peripheral can also be utilized with fielded devices impacted by the sunset of 3G cellular networks to extend the device's lifecycle with satellite connectivity, ensure reliable communications and maximize the long-term return on investment. The unique, environmentally sealed product can be easily installed through a simple plug and play connection on mobile assets, such as refrigerated trailers, dry vans, light and heavy-duty commercial vehicles, and rail cars. The power-efficient accessory allows messages to be sent during temporary power loss to ensure continuous operations.

### **Gilat Receives Order for a US Department of Defense Tactical Communications Program**

December 8, 2020 - Gilat Satellite Networks Ltd. announced its subsidiary Wavestream received a multi-million-dollar order from a customer in support of a military communications program run by the US Department of Defense (DoD). New generation of Wavestream Block Upconverters (BUCs) successfully

meet DoD program's requirement for interoperability on multiple satellite constellations at multiple frequencies. Wavestream's newly redesigned Matchbox 20W Ka-band BUC is the most compact outdoor-rated Ka-band BUC ever developed by Wavestream. This unit rounds out Wavestream's Ka-band Matchbox product portfolio as a small but powerful BUC capable of connecting to multiple Low Earth Orbit (LEO) and Geostationary Orbit (GEO) satellite constellations in multiple Ka-band frequency lineups. Additionally, the brand new MicroStream 20W Ku BUC is designed to be tightly integrated within the electronics enclosure of the terminal and has been specifically developed with size, weight and power (SWaP) in mind. It is indicative of the incredibly flexible capability set that Wavestream offers its customers when it comes to deeply integrated RF solutions.

### **Comtech Receives Additional Funding to Support the U.S. Army's Blue Force Tracking System**

December 7, 2020 - Comtech Mission-Critical Technologies group was awarded \$2.1 million of additional funding for Option Year 3 of contract GS03Q17DSC0002, of which \$1.0 million was awarded in the first quarter of fiscal 2021. The overall funded value of the contract, inclusive of the Base period and Option Years 1 through 3, is approximately \$29.3 million. These contract modifications are part of the five-year BFT-1 sustainment support contract for the U.S. Army's Project Manager Mission Command ("PM MC") Blue Force Tracking ("BFT-1") program. Comtech continues to perform engineering services, satellite network operations and program management through a Firm Fixed Price ("FFP") contract with Time & Materials ("T&M") and Cost Reimbursement elements. Option Year 3's performance period began April 15, 2020 and ends April 14, 2021, and the contract provides for one additional twelve-month option period, exercisable by GSA. The Mission-Critical Technologies group is focused on ensuring its customers are able to successfully carry out their mission, whether that be communicating in an austere environment on land or at sea, launching or tracking a satellite, or protecting the cyber security posture of their network.

### **EchoStar Mobile Partners with Jersey Telecom to Bring Hybrid Network Capability to Europe**

December 4, 2020 - EchoStar Mobile today announced a partnership with Jersey Telecom (JT) to bring true, hybrid satellite/cellular capability to Internet of Things (IoT) and Mobility customers across Europe and the UK. EchoStar Mobile is combining its European S-band mobile satellite network with the JT 4G platform to offer a cellular roaming network for its new SYNERGY service suite. EchoStar Mobile SYNERGY's industry-first hybrid approach brings to market a single terminal, single subscription, and a single management interface for a networking solution that uses both mobile satellite and cellular connectivity. It offers comprehensive, cost-effective hybrid connectivity to users across Europe and the UK, ensuring that applications, people, and things have the best possible connectivity, whether at fixed locations or on the move, from dense urban areas to the most remote regions.

### **ST Engineering iDirect's VSAT Modem Hits 600Mbps Speed**

December 3, 2020 - ST Engineering iDirect, a global leader in satellite communications, today announced that its MDM5010 modem has achieved an aggregate speed of 600Mbps, making it the industry's fastest satellite modem for shared bandwidth capacity networks. While these speeds have previously only been achieved with single channel per carrier (SCPC) point-to-point modems, bandwidth-sharing efficiencies can now be augmented to satisfy the most demanding throughput requirements in markets such as cruise, trunking and cellular backhaul. Delivering three times more return throughput at 200Mbps using the innovative Mx-DMA return technology, coupled with up to 400Mbps on the DVB-S2X outbound for an aggregate speed of 600Mbps, the MDM5010 modem delivers enhanced Quality of Experience (QoE) for high throughput applications such as broadband connectivity to thousands of cruise passengers, crew and devices, including rich media streaming and content uploading. ST Engineering iDirect's Mx-DMA return technology, a core feature of the award-winning Newtec Dialog® platform, is a patented, efficient and dynamic waveform which enables service providers to seamlessly share satellite capacity more efficiently over a group of satellite modems. In this latest Dialog Release 2.2.3, the maximum return symbol rate per modem increased from 20Msps to 68Msps, which equates to a throughput increase from 70Mbps to 200Mbps on the inbound.

### **Comtech Wins \$2.0M Contract for Asia-Pacific Next Generation Emergency Communication System**

December 3, 2020 - Comtech Telecommunications Corp. announced that during its first quarter of fiscal 2021, Comtech Solacom Technologies, Inc., a division of Comtech's Commercial Solutions segment, was awarded a Next Generation emergency communications contract from an Asia-Pacific country. The contract includes multiple support years and is fully funded. Comtech Solacom will provide a full turnkey solution, including all hardware and software, installation, and training for a geo-diverse Guardian call management system for multiple call center locations across the country. The Guardian solution will be

deployed in a redundant, geo-diverse configuration ensuring the highest possible service availability with an intuitive user interface allowing call takers to quickly assess, prioritize and handle landline, wireless and VoIP emergency calls. Call takers can quickly create conferences, transfer calls, determine the location of callers and replay recently recorded conversations.

### **ThinKom Solutions Supplies Phased-Array Antennas to GDC Technics**

December 3, 2020 - ThinKom Solutions, Inc., announced it is supplying its ThinAir® Ka2517 aero satellite antennas to GDC Technics, in support of Inmarsat's next-generation GX terminal and associated inflight broadband services. ThinKom's low-profile Ka-band phased-array antenna was selected by Inmarsat based on its impressive record of reliability and performance. The selection was the culmination of more than 18 months of collaboration and field testing by ThinKom and GDC. The Ka2517 will serve as a critical enabling technology underpinning Inmarsat's GX Aviation broadband satellite inflight connectivity (IFC) solutions, including the new GX+ North American IFC service announced by Inmarsat and Hughes Network Systems earlier this year. The Ka2517 antenna is based on ThinKom's patented VICTS technology. VICTS antennas have accumulated over 18 million operational hours on more than 1,550 commercial aircraft, with a mean-time-between-failure (MTBF) of over 100,000 hours. ThinKom's low-profile radome minimizes drag and reduces fuel usage. The VICTS antenna provides industry-leading spectral efficiency and throughput, as well as uninterrupted pole-to-pole connectivity at extremely high and low elevation angles. In addition, the antenna's very low power consumption translates into very low heat generation inside the radome, enabling uninterrupted gate-to-gate operation even during high ambient temperatures with full solar loading.

### **Comtech EF Data Receives \$1.0 Million in Delivery Orders for Satellite Earth Station Equipment**

December 2, 2020 - Comtech EF Data Corp., which is part of Comtech's Commercial Solutions segment, received \$1.0 million in delivery orders in support of a previously awarded \$58.8 million indefinite delivery/indefinite quantity ("IDIQ") contract from the U.S. Naval Information Warfare Systems Command. Funded orders received to-date under this IDIQ contract now total \$30.7 million. The delivery orders specified Comtech EF Data's SLM-5650B Satellite Modems and firmware upgrades. The SLM-5650B Satellite Modem is Comtech EF Data's latest generation modem product targeted for critical commercial backhaul, government and military applications. The SLM-5650B leverages the heritage and feature set of the SLM-5650A modem. The SLM-5650B supports backwards compatibility/interoperability for existing SLM-5650A networks while providing enhanced performance and an expanded feature set. The commercially available modems will support satellite communications and interoperability across the Navy's platforms and shore sites.

### **Hughes Positioned as a Challenger in 2020 Gartner Magic Quadrant for Managed Network Services**

December 2, 2020 - Gartner and Frost & Sullivan have recognized Hughes Network Systems, LLC as a market leader in managed network services and SD-WAN. Under its HughesON™ brand, Hughes has proven its ability to deliver effective managed network services, customer service and satisfaction, as well as advancements in automation – including an industry-first Artificial Intelligence for IT operations (AIOps) feature that automatically remediates issues at the network edge. The Gartner November 2020 Magic Quadrant for Managed Network Services report recognizes Hughes as a Challenger because of the company's ability to execute and completeness of vision. Hughes is a pioneer of performance optimization technology and continues to lead the industry with innovations like its new AIOps feature and a service delivery platform that combines automation, analytics and customer experience management. Hughes also scored the highest in all five managed network use cases in the November 2020 Gartner Critical Capabilities for Managed Network Services report.

### **Marlink Provides Connectivity Services for Manta Shipping with Local Partner Ozsay Satellite**

December 2, 2020 - Leading Turkish shipping services provider Manta Denizcilik Nakliyat ve Ticaret Ltd. Şti. (Manta Shipping) has selected Marlink to provide Inmarsat's Fleet Xpress service on eight of its vessels. The agreement was signed through Marlink's local partner Ozsay Satellite to support Manta Shipping's drive towards digitalised shipping operations and increased connectivity for crew. Marlink will provide the high-throughput Ka-band VSAT with a bundled L-Band back-up solution, both of which will benefit from Marlink's enhanced network transparency, which provides users and shore staff with immediate information on which network is in use for specific tasks. This unique tool enables ship and shore staff to analyze usage and prioritize data intensive downloads when in the areas of strongest VSAT coverage. Applications such as remote diagnostics security updates or software updates can be planned and scheduled according to which carrier is active. Over time, users can monitor coverage in different regions,

prioritising enterprise or crew usage based on the active carrier.

### **EM Solutions Secures Further Orders from L3Harris for its Satellite Terminal Transceivers**

December 2, 2020 - EM Solutions has recently received a second order to supply its Ka-band transceivers for the L3Harris Technologies Panther II Very Small Aperture Terminals (VSAT). The new contract, valued at more than \$US2M, will deliver over 100 Ka-band transceivers to L3Harris across the first half of 2021. The contract award to EM Solutions follows an earlier order to supply 50 transceivers that are already being delivered to L3Harris.

### **Satcom Global Strengthens Aura VSAT Network with NSS-6 Satellite**

December 1, 2020 - Satcom Global has added a new satellite to the Ku-band Aura VSAT network, expanding coverage and capacity across the North Pacific. The addition of NSS-6 will augment the existing satellite footprint in place over the Pacific Ocean, providing enhanced coverage and improved connectivity for Satcom Global customers sailing trans-Pacific trade routes, as well as providing additional line of sight options if they are required. The unique Aura VSAT network was designed to grow with Satcom Global's maritime customer base, ensuring optimum service quality for the lifetime of the customer contract. Additional bandwidth is added to the network organically with each customer registration, ensuring that service does not degrade over time and that Committed Information Rates are always fulfilled. NSS-6 sits in geostationary orbit with 60 high-power Ku-band transponders which can be flexibly allocated to its 6 Ku-band broad beams. The satellite, which also has 12 super-high-gain Ka-band spot beams is owned and operated by SES S.A., Satcom Global's primary network supplier for the Aura service. This latest network enhancement follows the addition of SES-14 and SES-15 HTS beams to Satcom Global's flagship VSAT network in early 2020.

### **Gogo Completes Sale of Commercial Aviation Business to Intelsat**

December 1, 2020 - Gogo announced it has completed the sale of its Commercial Aviation (CA) business to a subsidiary of Intelsat for \$400 million in cash. Gogo will continue as a publicly traded company, now singularly focused on leveraging its ATG network and proprietary spectrum to serve the business aviation market. The proceeds from the transaction significantly strengthen Gogo's financial position by reducing its net debt position and enhancing the company's ability to invest in growth opportunities, including Gogo 5G. Immediately following closing, and after Gogo's \$53 million semi-annual interest payments in November, Gogo had approximately \$460 million in cash-on-hand and net debt of approximately \$770 million. As previously disclosed, Gogo intends to undertake a comprehensive refinancing prior to the first call date of its senior secured notes in May 2021 to align its balance sheet with its new business structure, reduce its interest expense, and facilitate the repayment at maturity of Gogo's convertible notes, of which \$238 million aggregate principal amount are currently outstanding.

### **ND SatCom Unveils SKYWAN 5G Release 2.0**

December 1, 2020 - ND SatCom has unveiled SKYWAN 5G Release 2.0, the latest iteration of the only VSAT technology allowing multi-channel TDMA networks with True-Mesh ACM for hubless secure communication. ND SatCom's new True-Mesh ACM, provides the highest link reliability and stability regardless of changing link conditions, boosting throughput by throttling only the direct hop between two sites, while also supporting SCPC. "The game changing SKYWAN 5G Release 2.0 is here," said Michael Weixler, Head of Product Management. "True-Mesh ACM with intelligence integrated into the SKYWAN nodes automatically gives the customer maximum performance for any topology and network design. Combined with the new Point-2-Point waveform on the same platform, customers decide when to re-configure their networks based on actual connectivity needs," Weixler continued. "Flexibility and security throughout represent a whole new level for VSATs and a quantum leap for SKYWAN 5G."

### **HISe, Inc. is Engaged in Indonesia's Multi-Functional Satellite Project as an Independent Supervisory Consultant**

December 1, 2020 - HISe, Inc. announced today that it was awarded a three-year contract to act as an Independent Supervisory Consultant (ISC) for Indonesia's Multi-Functional Satellite (SMF) Project. SMF is Indonesia's Public Private Partnership (PPP) project to enable Badan Aksesibilitas Telekomunikasi dan Informasi (BAKTI), a unit of Indonesian Ministry of Communications (KOMINFO), to use 150Gbps of Ka-band high throughput satellite (HTS) capacity for various services to the nation's public entities, such as government offices, schools, hospitals, rural connections, etc. BAKTI earlier selected PT Satelit Nusantara Tiga (SNT), a wholly owned subsidiary of commercial satellite operator, Pasifik Satelit Nusantara (PSN), as a prime contractor of this SMF Project. HISe will provide reviews on various milestones of the SMF to

ensure that the project is implemented and executed between BAKTI and SNT in a manner that is fully compliant with project requirements. On this engagement, contractually, HISE is working under a consortium arrangement with Indonesia's state-owned consulting firm, PT Surveyor Indonesia (PTSI). For this engagement, HISE teamed with ArgoSat Consulting, LLC of New York. Prior to this engagement, HISE and ArgoSat have worked jointly on several advisory accounts from clients in Asia-Pacific region, including planning and procurement support of SMF during 2018 and 2019. ArgoSat, founded in 2009 and led by two Partners, Dr. Graeme Shaw and Richard Davis, is also a rapidly growing advisory firm and is known in the industry as an expert in the HTS systems field. Capabilities of HISE and ArgoSat are complimentary. Beyond SMF, HISE and ArgoSat have agreed to jointly pursue other satellite project support opportunities together.

### **Kymeta Announces Availability of its Next-Generation Antenna, Terminal, and Services**

December 1, 2020 - Kymeta, the communications company making mobile global, announced that the Kymeta™ u8 and Kymeta Connect™ are available for government and commercial purchase after November 30, 2020, unlocking the potential of broadband satellite connectivity and cellular networks to satisfy the overwhelming demand for communications on the move. Kymeta's next-generation solutions are built for mobility and designed to meet the needs of global defense agencies, government, first responders, and commercial customers. Kymeta's products and services have been field deployed for three years and the demand for the Kymeta u8 presales has already exceeded expectations. With the introduction of the Kymeta u8, the company has meaningfully increased antenna throughput and significantly reduced the total cost of ownership. Kymeta's new products and services offer a breakthrough in performance, ease of use, and affordability, and it anticipates that these solutions will further enhance its position in both commercial and government markets, further increasing its lead over competitive offerings.

### **Comtech Wins City of Edmonton Next-Generation 911 Contract Valued at \$2.4M**

December 1, 2020 - Comtech Telecommunications Corp., a world leader in secure and highly reliable location, public safety, navigation and communication technologies, announced today, that during its first quarter of fiscal 2021, Comtech Solacom Technologies, Inc., a division of Comtech's Commercial Solutions segment, was awarded a Next Generation 911 (NG911) services contract from the City of Edmonton. The \$2.4 million contract value includes option years and was initially funded at \$1.6 million, which Comtech booked in its first quarter of fiscal 2021. The City of Edmonton is one of the latest customers to join Comtech Solacom's growing global customer base in Australia, Canada, New Zealand and the United States. Comtech Solacom will provide its Guardian NG911 call handling solution to the Edmonton Police Service (EPS) and Edmonton Fire Rescue Service (EFRS). The Comtech Solacom solution will be deployed in a redundant, geo-diverse configuration with a total of 80 emergency call taking positions, as well as with training systems for both the police and fire services.

## **BROADCAST**

### **AsiaSat Adds HERMES Live's Streaming Service to its Media Solution Offerings**

December 23, 2020 - Asia Satellite Telecommunications Company Limited announced further expansion of its media solution offerings by partnering with HERMES Live to provide broadcast-grade live streaming service to its global customers. This streaming service will enable AsiaSat to provide complete solution that addresses customers' increasing need for distributing content flexibly, cost effectively and for maximum reach as digital transformation has reshaped the way audiences consume content. HERMES Live is a live streaming platform based on patented video technologies, for broadcasters, media companies, event organisers, corporates and enterprises to deliver live streaming content such as live sports, concerts, conferences, performances and education to audiences with proven broadcast quality, high availability and security. HERMES Live facilitates digital transformation of business and commerce through a one-stop live video streaming solution and live event services, seamlessly broadcasts to a global audience across all devices and simulcasts to multiple social media. Events delivered on HERMES Live platform have included some of the region's most anticipated concerts such as Eason Chan Charity Concert; AGM events for listed companies, with Tricor offering Hong Kong's first and only full-function platform that enables electronic general meetings with live streaming; virtual conferences, interviews and commercial events such as Hong Kong FinTech Week 2020, Entrepreneur Day 2020 and Sotheby's Hong Kong Sales Live Auction.

### **Ethiopia Sets 1 Jan 2021 for Majority of Satellite TV Channels to Migrate to 57 Degrees East**

December 23, 2020 - As of 1 Jan 2021, Ethiopian TV audiences will access majority of their favorite

Ethiopian TV channels exclusively on Ethiosat at 57 degrees East. Ethiopian viewers should have their respective local satellite antenna installer adjust the position of their antenna to access the Ethiosat direct-to-home platform, following the press announcement from the Ethiopian Government on Tuesday 15 December in Addis Ababa. The partnership agreement signed between Ethiopian Broadcasting Authority (EBA), Ethiopian Space Science and Technology Institute (ESSTI), which represented the Ethiopian government, public and private broadcasters and SES, the leader in global content connectivity solutions, marks for the beginning of a new era for TV viewers in Ethiopia as the country moves permanently towards the consolidation of Ethiopian content into one prime TV neighbourhood. Ethiosat is Ethiopia's first-ever dedicated free-to-air (FTA) TV platform, hosted on SES's NSS-12 satellite. The platform was launched in October 2019 as a result of an agreement between the Association of Ethiopian Broadcasters (AEB), the Ethiopian Broadcasting Corporation (EBC) and SES to consolidate all Ethiopian TV channels and broadcast them from one orbital position rather than having viewers navigate through a multitude of foreign channels.

### **ATEME Titan Live Empowers Fasternet's Live Transcoding Expansion Project**

December 16, 2020 - ATEME, the emerging leader in video delivery solutions for broadcast, cable, DTH, IPTV and OTT announced that FasterNet, the Brazilian Internet service provider (ISP) and part of the MULTTV platform for content distribution over IPTV, successfully implemented ATEME TITAN Live to deliver HD channels over its IPTV platform. With approximately 100,000 subscribers, FasterNet is one of the main ISPs operating in São Paulo, delivering around 80 channels. As FasterNet looks to improve its IPTV offering, it has chosen to implement ATEME's TITAN Live transcoding solution, which will allow the company to improve its legacy multicast distribution platform while expanding to a multi-platform operation. At the heart of FasterNet's decision to implement TITAN Live was the platform's user-friendly interface and ATEME's invaluable and readily available local market support.

### **1-2-3.tv Extends SD and HD Broadcasting via SES ASTRA 19.2 Degrees East**

December 9, 2020 - Viewers across Germany will continue to enjoy shopping from the omnichannel auction platform 1-2-3.tv via SES ASTRA 19.2 degrees East. Under a new long-term partnership agreement, 1-2-3.tv will continue broadcasting its SD and HD live auction programme on SES satellites. 1-2-3.tv is Germany's leading omnichannel auction platform that reaches over 2 million viewers via TV, online and on mobile apps. 1-2-3.tv's HD channel is available on the 10.803 MHz frequency, and its SD channel is received in the MPEG-2 format on the 12.460 MHz frequency. In addition to satellite transmission, 1-2-3.tv is relying on SES's Satellite and OTT in sync solution to minimise delays for online viewers. SES's solution synchronises OTT and satellite television experiences, ensuring that consumers who watch 1-2-3 TV online now have an equal opportunity to participate in live auctions with consumers watching via satellite TV.

### **Bridge Technologies Partners with Germany's Broadcast Solutions**

December 7, 2020 - Bridge Technologies today announces partnership with systems integrator Broadcast Solutions. Founded in Germany 17 years ago, Broadcast Solutions maintains subsidiaries in Europe, Asia and the Middle East, and have planned and implemented high-level broadcast projects around the globe. With the majority of their business activities focused on assisting in the creation of both mobile and studio-based production centres, the integration of the VB440 into Broadcast Solutions' product offerings will be of significant importance – offering as it does breakthrough monitoring and analysis of ST2110 and ST2022-6 high-bitrate broadcast media traffic in production studios, master control centres and outside broadcast vehicles and venues. Of course, Bridge's full product list will also be available to Broadcast Solutions to give them maximum range and flexibility in the monitoring solutions they can offer customers. Broadcast Solutions operates as a manufacturer-independent systems integrator; and this objectivity in terms of product solutions combined with their choice to carry Bridge products is testament to the fact that Bridge provides stand-out solutions in their field, which justify inclusion in any production setup on the basis of both their technological innovation and raw processing power, and the deep-dive analytics capabilities and intuitive presentation of data they offer.

### **Televisionsklub and SES Extend Partnership for TV Distribution of Satelio**

December 1, 2020 - *Satellite TV* viewers across sub-Saharan Africa will be able to continue watching German TV channels offered by Satelio in Namibia and Deukom in South Africa announced the TV platform operator and SES, the leading global content connectivity solutions provider. Satelio and Deukom are operated by Deutscher Televisionsklub Betriebs GmbH and broadcasted via SES's key orbital position at 5 degrees East. Along with a five-year extension, Televisionsklub will upgrade to a full transponder on

ASTRA 4A to serve its customers across Sub-Saharan Africa, with a focus on Namibia and South Africa. This renewal and expansion of capacity on ASTRA 4A will enable the platform to offer more HD channels and entertaining content for their audience.

## LAUNCH / SPACE

### **Arianespace Orbits the CSO-2 Military Observation Satellite for France**

December 30, 2020 - For its 10th and final launch of the year, Arianespace used a Soyuz rocket to orbit the CSO-2 defense and security observation satellite for the French CNES space agency (Centre National d'Etudes Spatiales) and DGA defense procurement agency (Direction générale de l'armement), on behalf of the French armed forces. With this launch, Arianespace has once again demonstrated its ability to ensure independent access to space for France and Europe. The latest success from the Guiana Space Center confirms the flexibility of Soyuz, occurring just 10 days after the medium-lift vehicle's first commercial launch operated by Arianespace and its Starsem affiliate from Russia's Vostochny Cosmodrome. On Tuesday, December 29, 2020 at 1:42 p.m. local time, Arianespace successfully launched an Earth observation satellite for defense and security purposes from the Guiana Space Center, Europe's Spaceport in French Guiana (South America), using a medium-lift Soyuz launcher. This payload, CSO-2, is the second dedicated military observation satellite in France's Optical Space Component (CSO – Composante Spatiale Optique), a program conducted by CNES and DGA for operation by the French Armed Forces and the country's Space Command.

### **mu Space to Push Thai Space Industry, Opens Manufacturing Factory**

December 26, 2020 - 2020 was the time when the space scene was lively again, with the Thai government pushing for space-activity-related legislation and creating mechanisms to promote and support both the government and the private sector to develop the space industry together, which is one of the target industries in the new S-curve that will increase Thailand's investment capacity and its role in developing the space industry and ultimately add values to the Thai economy. The private sector also plays an important role in developing the economy and stimulating investment in the space industry. This year, mu Space and Advanced Technology Public Company Limited (mu Space Corp.), a 3-year-old private satellite and space technologies firm, was able to attract investors from several industries and businesses to invest in the space industry, such as TOT Public Company Limited, executives from Dow Chemical Group, SCG, as well as the current investors, including Nice Apparel Group – a global leading athlete apparel maker –, B.Grimm Group, Majuven Fund, private business group, and a group of other minor investors i.e. executives from the UCLA Foundation. The value of 'mu Space' has increased to more than \$100 million. through a Series B fundraising.

### **European Space and Digital Players to Study Build of EU's Satellite-Based Connectivity System**

December 23, 2020 - The European Commission has selected a consortium of European satellite manufacturers, operators and service providers, telco operators and launch service providers to study the design, development and launch of a European-owned space-based communication system. The study will assess the feasibility of a new initiative aiming to strengthen European digital sovereignty and provide secure connectivity for citizens, commercial enterprises and public institutions as well as providing global coverage for rural and 'not-spot' areas. Complementing Copernicus and Galileo, this new EU flagship programme, once given the green light, would fully exploit the synergies of the technological potential akin to the Digital and Space industries. The contract value of the year-long feasibility study amounts to € 7.1 million. The European space-based connectivity system, advocated by Commissioner Breton, is set to provide secure communication services to the EU and its Member States as well as broadband connectivity for European citizens, companies and mobility sectors, strengthening EU digital sovereignty. It will build upon the European Union's GOVSATCOM programme of pooling and sharing satellite services, and will ensure a high level of reliability, resilience and security not currently available in the market; it will also leverage the EuroQCI initiative that promotes innovative quantum cryptography technology. The study will look at how the space-based system could enhance and connect to current and future critical infrastructures, including terrestrial networks, strengthening EU capability to access the cloud and providing digital services in an independent and secure way, which is essential for building confidence in the digital economy and ensuring European strategic autonomy and resilience.

### **Firefly Aerospace and Adaptive Launch Solutions Sign Multi-Launch Agreement**

December 23, 2020 - Firefly Aerospace, Inc. and Adaptive Launch Solutions (ALS), announced they have signed a multi-year Launch Services Agreement (LSA) which includes four Alpha launches beginning in

2021. Firefly is preparing for the first launch of the Alpha vehicle in early 2021. Acceptance testing of both Stage 1 and Stage 2 for Flight 1 has been completed, and Firefly's Vandenberg Air Force Base Space Launch Complex 2 launch site is nearing completion and activation.

### **Arianespace to Orbit CSO-2 Satellite for CNES and DGA on behalf of the French Ministry of Defense**

December 22, 2020 - For its 10th and final launch of the year – and the fifth in 2020 with the Soyuz medium launcher – Arianespace will send the CSO-2 Earth observation satellite, intended for defense and security applications, into Sun-synchronous orbit. CSO-2 will be launched for the French CNES (Centre National d'Etudes Spatiales) space agency and the DGA (Direction générale de l'armement) defense procurement agency on behalf of the French Ministry of Defense. With this new launch at the service of France's defense requirements, as well as for the capacity needs of several partner countries, Arianespace guarantees French and European autonomous access to space – a strategic priority. Flight VS25 will be performed from the Soyuz Launch Complex (ELS) in Sinnamary, French Guiana.

### **CGWIC Successfully Launches Four Satellites aboard Long March-8 Maiden Flight**

December 22, 2020 - Long March-8 (LM-8) launch vehicle made its debut from Wenchang Spacecraft Launch Site, successfully sending five satellites into pre-determined orbit. China Great Wall Industry Corporation (CGWIC), a subsidiary of China Aerospace Science & Technology Corporation (CASC), provides the launch services for four satellites aboard including HiSea-1, Yuanguang Satellite, TQ-08, and SS-01A. LM-8 launch vehicle is the new generation cryogenic liquid medium-sized launch vehicle of China, which is designed and manufactured by China Academy of Launch Vehicle Technology (CALT), a subsidiary of CASC, with the configuration of a core stage strapped with two boosters. The total length is 50.3 meters, the lift-off mass is 356 tons, and the launch capacity is no less than 4.5 tons for 700 km sun synchronous orbit. Featured by its cost-effectiveness, LM-8 is designed with the aim to provide launch services in the commercial market. HiSea-1 is a synthetic aperture radar imaging satellite, and Yuanguang Satellite is for scientific experiment, both belong to SpaceTY Co., Ltd. (Changsha); TQ-08 is a low-orbit data collection satellite of Beijing Guodian Hi-Tech Science and Technology LTD, and SS-01A is a remote sensing satellite of Beijing Smart Satellite Space Technology Co., Ltd.

### **Exolaunch Integrates 30 Small Satellites for SpaceX First Dedicated Rideshare Launch**

December 21, 2020 - Exolaunch has begun its launch campaign to integrate 30 small satellites from the U.S. and Europe aboard SpaceX's Falcon 9 rideshare mission scheduled for no earlier than January 2021. This is the first dedicated rideshare mission of SpaceX's SmallSat Rideshare Program and the first of several rideshares Exolaunch is manifesting on Falcon 9 as part of a multi-launch agreement the company signed with SpaceX earlier this year. For each Falcon 9 launch, Exolaunch will provide comprehensive rideshare mission management, deployment, and satellite integration services for its customers. This launch will be one of the largest and most diverse rideshare missions of the company, which also announced it will open a U.S. office to better serve its U.S. customers. Most of the nanosatellites have been integrated into their launch deployers in the company's Berlin facilities, at the moment the team of Exolaunch is performing the final integration of the diverse small satellite cluster with Falcon 9 at SpaceX's facilities in Cape Canaveral, Florida.

### **Successful OneWeb Constellation's Satellites Deployment with Arianespace**

December 18, 2020 - OneWeb's fourth launch overall - the third for 2020 - is the first to be conducted with Soyuz by Arianespace from the Vostochny Cosmodrome in Russia. By successfully placing 36 new OneWeb constellation satellites into orbit, Arianespace resumed the deployment of this client's satellite network, which now is composed of 110 satellites in low Earth orbit. Today's launch, Flight ST29, was the 53rd Soyuz mission carried out by Arianespace and its Starsem affiliate, marking a milestone as their first from the Vostochny Cosmodrome in Russia. Performed on Friday, December 18 at precisely 9:26:26 p.m. local time (12:26:26p.m. UTC), Flight ST29 orbited 36 new OneWeb satellites – bringing the size of the fleet in orbit to 110. Arianespace has launched 110 OneWeb satellites to date. The initial six were successfully orbited by Soyuz Flight VS21 from French Guiana during February, 2019. In February and March 2020 Arianespace and its Starsem affiliate successfully launched 68 OneWeb satellites from Baikonur Cosmodrome on Soyuz Flights ST27 and ST28. Pursuant to an amended launch contract with OneWeb, Arianespace and Starsem will perform 15 more Soyuz launches through 2021 and 2022. These launches will enable OneWeb to complete the deployment of its full global constellation of low Earth orbit satellites by the end of 2022.

### **PSLV-C50 Successfully Launches CMS-01 from Satish Dhawan Space Centre SHAR, Sriharikota**

December 18, 2020 - India's communication satellite CMS-01 was successfully launched by PSLV-C50 on Wednesday December 17, 2020 from the Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota. PSLV-C50 lifted off from the Second Launch Pad of SDSC SHAR at 15:41 hours (IST) carrying CMS-01. After a flight of about 20 minutes 12 seconds, the vehicle injected the satellite into its intended orbit as planned. After injection, the solar panels of CMS-01 were automatically deployed and ISRO's Master Control Facility at Hassan has assumed the control of the satellite. In the coming days, orbit raising manoeuvres will be executed to position the satellite in the Geostationary Orbit at its designated location. PSLV-C50 is the 52nd flight of PSLV and 22nd flight of PSLV in 'XL' configuration (with 6 strap-on motors). This was the 77th launch vehicle mission from SDSC SHAR, Sriharikota.

### **NASA Selects Blue Origin's New Glenn Rocket for Launch Services Catalog**

December 16, 2020 - NASA awarded Blue Origin a NASA Launch Services II (NLS II) Indefinite Delivery Indefinite Quantity (IDIQ) contract to launch planetary, Earth observation, exploration, and scientific satellites for the agency aboard New Glenn, Blue Origin's orbital reusable launch vehicle. The contract allows Blue Origin to compete for missions through Launch Service Task Orders issued by NASA. Project managers at NASA Centers around the country can now design spacecraft to take advantage of New Glenn's unique seven-meter fairing and heavy-lift performance for a broad range of missions. New Glenn is a single-configuration, operationally reusable heavy-lift launch vehicle powered by seven BE-4 liquefied natural gas rocket engines. The vehicle's seven-meter fairing provides more than double the usable volume of any existing launch vehicle.

### **Eutelsat Entrusts Arianespace with the Launch of its Next-Generation EUTELSAT 10B Satellite**

December 15, 2020 - Arianespace and Eutelsat have confirmed that EUTELSAT 10B, Eutelsat's next generation high-throughput telecommunications satellite, will be launched on an Ariane 5 rocket. EUTELSAT 10B is scheduled for launch in 2022 on one of eight Ariane 5 missions remaining to be performed with the heavy-lift launcher. EUTELSAT 10B is a telecommunications satellite to be positioned at the 10° East orbital position, offering unique visibility spanning from the Americas to Asia. Built by Thales Alenia Space and based on its Spacebus NEO all-electric platform, it will embark Ku- and C-band payloads to ensure service continuity for existing customers on EUTELSAT 10A, while supporting the development of the Eutelsat Group's activities in mobile connectivity thanks to two incremental multi-beam HTS Ku-band payloads.

### **Thales Alenia Space and Telespazio Signed a Contract for Two Additional COSMOSkyMed Second Generation Satellites**

December 15, 2020 - Thales Alenia Space and Telespazio have signed the contracts with the Italian Ministry of Defence and with the Italian Space Agency (ASI), to launch the development of two additional satellites and the upgrade of ground, logistic support and operational segments to complete the COSMO-SkyMed Second Generation constellation (CSG). Thales Alenia Space is the lead of a consortium with Telespazio and Leonardo, within the overall COSMOSkyMed Second Generation programme. Telespazio is responsible for designing and developing the CSG Ground Segment, including the security aspects, as well as the Integrated Logistics and Operations (ILS&OPS) services, and Leonardo's space line of business provides specific satellite units. Thales Alenia Space is responsible for the design and development of the four CSG satellites and the end-to-end system design, integration and commissioning. The two new Satellites, to be built by Thales Alenia Space, will ensure the constellation completion and the full operational capacity of the SAR (Synthetic Aperture Radar) observation services provided by the four satellites of the COSMO-Second Generation replacing the previous COSMO-SkyMed first generation still operative despite exceeding the satellite lifetime. The new satellites will contribute to the continuous monitoring of the Earth's surface, to safety-related needs and to the management of natural events including support to damage assessment activities and rescuing operations. They will complete the constellation, along with the Proto-Flight Model (PFM) Launched in 2019 and the Flight Model 2 (FM2) - currently under integration phase in Thales Alenia Space Assembly Integration and Test (AIT) Facilities in Rome - and scheduled for launch at the end of 2021 with a VEGA-C launcher.

### **Rocket Lab Successfully Launches 17th Electron Mission, Deploys SAR Satellite for Synspec**

December 15, 2020 - Rocket Lab has successfully launched its 17th Electron mission, deploying the first spacecraft to orbit for synthetic aperture radar (SAR) satellite data and solutions provider Synspec. 'The Owl's Night Begins' launched from Rocket Lab Launch Complex 1 on New Zealand's Māhia Peninsula at 10:09 UTC, 15 December 2020 and successfully deployed Synspec's StriX-α to a 500km circular orbit.

The mission brings the total number of payloads deployed by Rocket Lab to 96. The StriX- $\alpha$  satellite will demonstrate synthetic aperture radar (SAR) technology developed by Synspecive to be able to image millimetre-level changes to the Earth's surface from space, independent of weather conditions on Earth and at any time of the day or night. StriX- $\alpha$  is the first of more than thirty satellites planned by Synspecive to form a constellation in low Earth orbit to collate data on a daily basis that can be used for urban development planning, construction and infrastructure monitoring, and disaster response across Asia.

#### **Fourth flight for OneWeb with the first Arianespace mission from Vostochny Cosmodrome**

December 15, 2020 - This 53rd Soyuz mission conducted by Arianespace and its Starsem affiliate will be operated from Vostochny Cosmodrome and represents OneWeb's fourth launch overall and the third for this year. This mission will deliver 36 satellites into orbit, bringing the total fleet to 110 satellites in low Earth orbit. By operating this fourth flight on behalf of OneWeb, Arianespace participates in the fulfilment of its customer's ultimate ambition: providing internet access for everyone, everywhere, all the time. Flight ST29 will be performed from the Soyuz Launch Complex in Vostochny, Russia. Flight ST29, the first commercial mission from Vostochny Cosmodrome performed by Arianespace and its Starsem affiliate, will put 36 of OneWeb's satellites into a near-polar orbit at an altitude of 450 kilometers. After separation, the satellites will raise themselves to their operational orbit.

#### **Blue Canyon Technologies Completes CDR for DARPA Blackjack Program**

December 14, 2020 - Blue Canyon Technologies (BCT) announced today that it has completed its critical design review (CDR) for the Blackjack Program, a military space capabilities demonstration being developed by the Defense Advanced Research Projects Agency (DARPA). By incorporating commercial sector advances in low-Earth orbit (LEO), including designs used for LEO broadband internet service, the goal of the Blackjack program is to demonstrate that a constellation of LEO satellites meets U.S. Department of Defense (DoD) performance and payload requirements, at a significantly lower cost, with shorter design cycles and with easier and more frequent technology upgrades. The Blackjack program aims to establish an economy of scale not previously available with current National Security Space (NSS) assets, which are large, costly, and would take years to replace if degraded or destroyed.

#### **Confirmation that the Asteroid Explorer Hayabusa2 Collected Samples of the Asteroid Ryugu**

December 14, 2020 - The Japan Aerospace Exploration Agency (JAXA) has confirmed that samples from asteroid Ryugu have been collected within the sample container inside the re-entry capsule of the asteroid explorer, Hayabusa2. The Hayabusa2 re-entry capsule was recovered in Woomera, Australia on December 6, 2020 and delivered to the JAXA Sagami-hara Campus on December 8. Work then began to open the sample container inside the re-entry capsule. On December 14, a sample of grains of black sand thought to be derived from asteroid Ryugu was confirmed to be inside the sample container. These are believed to be particles attached to the entrance of the sample catcher (the container in which the samples have been stored). Work will continue with opening the sample catcher that sits in the sample container. The curation and initial analysis team will remove the samples and proceed with the analysis.

#### **Fraunhofer and Airbus Sign Contract for a Payload Mission on the ISS Bartolomeo Platform**

December 14, 2020 - Airbus and Fraunhofer EMI have signed a contract for an in-orbit demonstration mission on the Bartolomeo platform of the International Space Station (ISS). With this mission, Fraunhofer EMI enables its spin-off ConstellR to demonstrate the core measurement technology required for highly accurate land surface temperature (LST) monitoring on a global scale. The ConstellR payload is an innovative multispectral imaging payload comprising a thermal infrared detector and advanced data processing hardware. It will utilise a 3U-slot (i.e. roughly 3000 cm<sup>3</sup>) on the ArgUS Multi-Payload Carrier, a plate designed to co-accommodate several smaller payloads on one Bartolomeo payload site. ConstellR aims to build a cooperative microsatellite constellation that will provide information on our planet's precise surface temperature on a global scale, at a high spatial resolution, daily or even sub-daily. Such data is increasingly in demand for the monitoring and modelling of environmental and climate-related aspects, e.g. evapotranspiration, water stress, and crop yield predictions.

#### **Thales Alenia Space Selected by ESA to Undertake a Scientific Study for a New Comet Interceptor Breakthrough Mission**

December 14, 2020 - In the UK Thales Alenia Space has been selected by the European Space Agency (ESA) to lead one of two parallel studies for the Comet Interceptor mission. The Comet Interceptor mission consists of one spacecraft and two small probes. It was selected by ESA in June 2019 to combine breakthrough technology in new comet discoveries to reveal information about pristine comets entering

the inner Solar System or an interstellar object passing through the Solar System. The scientific mission was originally proposed by an international team led by UK academics from University College London and the University of Edinburgh, among others. The three elements of the mission are a mothercraft, provided and operated by ESA and two small probes, (B1) provided by the Japanese Space Agency JAXA and (B2) by ESA, carried as payloads aboard the mothercraft. The mission will launch in 2028 and wait in orbit for a suitable target; the composite spacecraft will travel together before the three modules separate a few days prior to intercepting the comet. Each module will be equipped with science instruments, providing different perspectives of the comet's nucleus and its gas, dust, and plasma environment. Such 'multi-point' measurements will greatly improve the 3D information needed to understand the dynamic nature of a pristine comet while it is interacting with the constantly changing solar wind environment.

### **AST SpaceMobile Selects NEC to Manufacture Key Satellite Modules**

December 14, 2020 - AST & Science LLC announced that it has selected NEC Platforms, Ltd., a subsidiary of NEC Corporation (TSE: NEC) and a leader in the integration of IT and network technologies, to manufacture essential AST SpaceMobile satellite modules. NEC Platforms, based in Japan, will mass produce these modules, which are the cornerstone of AST SpaceMobile's patented technology for its high-powered low-Earth-orbit (LEO) satellites. AST SpaceMobile has developed the first satellite technology which connects directly to off-the-shelf smartphones at broadband speeds without any need for specialized satellite hardware. The AST SpaceMobile network will enable seamless roaming to and from terrestrial cellular networks, filling mobile coverage gaps around the world.

### **SiriusXM's New SXM-7 Satellite, Built by Maxar and Launched aboard a SpaceX Falcon 9 Performing Properly after Launch**

December 13, 2020 - Technologies, SiriusXM and SpaceX, today announced that the SXM-7 satellite was successfully launched and is performing properly. SXM-7, a high-powered digital audio radio satellite, was launched aboard a SpaceX Falcon 9 rocket from Cape Canaveral, Florida, earlier today. Shortly afterward, SXM-7 deployed its solar arrays and began receiving and sending signals. Next, SXM-7 will begin firing its thrusters to commence its journey to its final geostationary orbit. SXM-7 will provide continuous, reliable delivery of SiriusXM's audio entertainment and information services to consumers in the United States, and will expand SiriusXM's coverage area in Canada and the Caribbean for years to come. SXM-7 will deliver the highest power density of any commercial satellite on-orbit, sending more than 8,000 watts of content to the continental U.S., Canada, Puerto Rico and the Caribbean, increasing the power and reach of the signal for SiriusXM. SXM-7 weighs almost 7,000 kg and is built on Maxar's 1300-class platform, the world's most prevalent geosynchronous spacecraft platform. The satellite is designed to provide service for greater than 15 years. Maxar has previously built a total of seven satellites for SiriusXM, including its first-generation Sirius satellites that launched in 2000 and its second-generation Sirius satellites that launched in 2009 and 2013.

### **NASA's ELaNa 20 Mission First to Fly on Virgin Orbit Launch**

December 11, 2020 - Ten NASA-sponsored CubeSats are preparing to fly on the agency's next Educational Launch of Nanosatellites (ELaNa) mission, making this the first payload carried by Virgin Orbit's LauncherOne rocket. With the small satellites safely secured inside the payload fairing, and the fairing mated to the rocket, Virgin Orbit is gearing up for ELaNa 20, the Dec. 19, 2020, Launch Demo 2 flight from the Mojave Air and Space Port in California. Virgin Orbit completed their first launch demo earlier this year, validating that LauncherOne could be successfully air-launched from the company's "Cosmic Girl" carrier aircraft. LauncherOne attaches to the underside of the 747 aircraft's left wing. On launch day, once the aircraft reaches a specified altitude, the rocket will be released from the wing for a controlled drop over the Pacific Ocean. After dropping, LauncherOne's NewtonThree first stage engine will ignite, starting the launch sequence that will send the satellites on board into low-Earth orbit. A low-cost platform for agency missions, CubeSats and other small satellites are beginning to play a larger role in exploration, technology demonstration, scientific research, and educational investigations at NASA. The 10 CubeSats set to launch on this mission were designed and built by eight different universities in the United States, as well as one NASA center.

### **Firefly Black Awarded NASA Venture Class Launch Services Demonstration 2 Contract**

December 11, 2020 - Firefly Black, LLC announced its selection by the National Aeronautics and Space Administration (NASA) for the launch of Mission Two of the Venture Class Launch Service Demonstration 2 (VCLS Demo 2) contract. Mission Two involves launch of two CubeSat constellations to a 550 km Sun-Synchronous Orbit, separated by a minimum of 10 degrees in plane change. Firefly Black will bridge

demand between pure small launch capability and that provided by the National Security Space Launch program by providing a family of small-to-medium launchers and in-space transportation services.

### **TriSept Selects Relativity Space for Full Launch Mission aboard Terran 1**

December 10, 2020 - TriSept Corporation has selected Relativity Space for a full mission aboard Relativity's Terran 1, the world's first entirely 3D printed rocket. Under the signed agreement, TriSept has secured a full mission on Terran 1 as early as 2022. The launch will take place from one of Relativity's launch sites at Cape Canaveral or Vandenberg Air Force Base. TriSept, a leading provider of launch integration and program management services, primarily serves best-in-class commercial and U.S. government customers including the Department of Defense (DoD), NASA, the NRO, and classified payload missions supporting national security and innovation. Relativity Space, the first company to 3D print an entire rocket and build the largest metal 3D printers in the world, is disrupting aerospace with the first and only aerospace factory to integrate 3D printing, artificial intelligence, and autonomous robotics, allowing rockets to be built in less than 60 days, with 100x fewer parts and a radically simplified supply chain. Relativity will demonstrate its industry-defining advantage to offer both government and commercial customers affordable access to space, in Low Earth Orbit (LEO) and beyond. TriSept is a long-time go-to launch integration provider in the US and UK space markets, enabling the launch of more than 200 satellites, including a broad range of small rideshare spacecraft into LEO, MEO and GEO orbits.

### **Thales Alenia Space Delivers the High Gain Antenna for the Euclid Space Telescope**

December 10, 2020 - Thales Alenia Space has delivered the K-band high gain antenna to be integrated with the rest of the Euclid satellite in its plant in Turin. Thales Alenia Space in Spain is responsible for the deep space communications system, which comprises the communications panel delivered in 2019 and the high gain antenna, built by Thales Alenia Space in Rome. Thales Alenia Space in Italy is the satellite prime contractor of the Euclid mission and also responsible for the service module while Airbus in France as main industrial partner is developing the instrument. Euclid, an astronomy and astrophysics mission of the European Space Agency (ESA) scheduled for launch in 2022 on a Soyuz rocket from Europe's Spaceport in French Guiana, will survey the sky with a 1.2 m diameter space telescope to explore dark energy and dark matter and understand the origin of the accelerating expansion of the Universe.

### **Inmarsat's GX5 Satellite Enters Service**

December 10, 2020 - Inmarsat has confirmed the commercial service introduction (CSI) of GX5, the company's newest, most powerful geostationary satellite to date. GX5 is the fourteenth satellite currently in service with Inmarsat and provides additional capacity to Europe and the Middle East on the industry-leading Global Xpress (GX) Ka-band high-speed satellite broadband service. The satellite, launched in November 2019, delivers approximately double the combined capacity of the entire existing GX fleet (GX1-GX4). Together with a significantly expanded ground station network and enhanced cloud-based processing, GX5 supplements the global coverage of GX and supports the rapid growth in customer demand for GX services in the region, particularly for aviation connectivity, such as passenger Wi-Fi, as well as government and commercial maritime services.

### **NASA and Boeing Target New Launch Date for Next Starliner Flight Test**

December 9, 2020 - NASA and Boeing are targeting March 29 for the launch of Starliner's second uncrewed flight test to the International Space Station as part of the agency's Commercial Crew Program. Orbital Flight Test-2 (OFT-2) is a critical developmental milestone on the company's path toward flying crew missions for NASA. During OFT-2, the CST-100 Starliner spacecraft will launch on a United Launch Alliance Atlas V rocket from Space Launch Complex-41 at Cape Canaveral Air Force Station in Florida, dock to the International Space Station and return to land in the western United States about a week later as part of an end-to-end test to prove the system is ready to fly crew. The OFT-2 Starliner spacecraft is nearing final assembly inside the company's Commercial Crew and Cargo Processing Facility at NASA's Kennedy Space Center in Florida. The vehicle's reusable crew module has been powered up and final checkouts of the avionics, power and propulsion systems are nearing completion. The spacecraft's parachutes, landing airbags, base heat shield, and its back shells are installed signifying the completion of the vehicle build phase. In the coming weeks, teams will load the crew module with cargo, including Rosie the Rocketeer, and weigh the vehicle before mating it to its service module, which is already complete.

### **Thales Alenia Space and Avio Sign with ESA the Space Rider Development Contract**

December 9, 2020 - Thales Alenia Space and AVIO as cocontractor, signed a contract with the European Space Agency (ESA) for the development of the automated reusable Space Rider transportation system,

designed for deployment by the new Vega C light launcher into low Earth orbit (LEO). The total worth of the contract is 167M€ . Space Rider is Europe's solution for its own affordable and reusable end-to-end integrated space transportation system for unmanned missions and for routine access and return from low orbit. It will be used to transport a variety of payloads into different low Earth orbit (LEO) altitudes and inclinations. Designed as a free-flying orbital platform, Space Rider is capable of remaining two months in orbit, safely re-entering the atmosphere and landing on the ground with a precision of 150 metres. It can be recovered along with its payload, refurbished, and reused for up to six missions. Leading a consortium of European manufacturers, research centers and universities, Thales Alenia Space is responsible for the development of the reentry module (RM), the most challenging of the project derived from the IXV, experimental space shuttle made in Italy with the strong support from the Italian space agency ASI and tested in 2015. AVIO is in charge of the propulsions system and the expendable service module. Space Rider will be launched into space aboard the Vega C launcher, developed by AVIO for the European Space Agency.

### **Dawn Aerospace Licensed to Fly NZ's First Spaceplane**

December 9, 2020 - In a world-first, the New Zealand Civil Aviation Authority (CAA) has granted Dawn Aerospace an Unmanned Aircraft Operator Certificate to fly a suborbital spaceplane from a conventional airport. Authorised under Civil Aviation Rule Part 102, Dawn is setting a new precedent for how we access space. Presently, flights will operate without the need for restricted airspace, proving the worlds of spaceflight and civil aviation can fly in harmony. Dawn's Mk-II Aurora is the latest development in a series of test vehicles that will one-day launch satellites into space. Designed to take off and land from regular airports, it is capable of multiple flights per day. To achieve that, Dawn must fly just as other aircraft do, without the need to shut down airspace and have exclusion zones, as is typical for rocket launches. First flights of the Mk-II Aurora will begin in 2021 from a remote airport in the South Island of New Zealand.

### **MDA Announces Contract for Canadarm3 on NASA-led Gateway**

December 8, 2020 - MDA announced today that it has been awarded a contract from the Canadian Space Agency (CSA) to develop Canadarm3, the third generation Artificial Intelligence (AI)-based robotic system destined for "Gateway", a lunar-orbiting international space station. The contract involves the award of Phase A of the Canadarm3 program, with options for the follow-on phases. As MDA's most ambitious space exploration project yet, Canadarm3 will operate aboard Gateway, a NASA-led deep space outpost that will orbit the Moon beginning in the mid-2020s, supporting both human and robotic missions to the lunar surface, serving as a science laboratory, and acting as a proving ground for exploration missions into deeper space. Canadarm3 will include the full robotics system, comprised of an eXploration Large Arm (XLA), an eXploration Dexterous Arm (XDA), specialized tools for performing maintenance and science tasks, as well as the ground control systems and AI-based control and mission planning software.

### **Arianespace to Orbit on a Vega C Launcher the CO3D Constellation**

December 7, 2020 - Arianespace has signed a contract with Airbus to launch four new-generation optical observation satellites of the CO3D (Composante Optique 3D) constellation, to be orbited using the Vega C launcher. Weighing approximately 300 kg. each, these satellites will be launched together as co-passengers on a single flight and deployed into polar orbit at an altitude of 500 km. The mission is scheduled for 2023 from the Guiana Space Center, Europe's Spaceport in French Guiana, using a Vega C launch vehicle. The CO3D constellation comprises four identical satellites, built on a highly innovative all-electric platform developed by Airbus. As a result of the CNES and Airbus partnership, CO3D will deliver stereoscopic images of the Earth at a resolution of 50 cm, with a high revisit rate. This data will be fed into an Airbus digital processing system, which will integrate advanced algorithms from CNES to quickly produce ultra-precise 3D maps of our planet's surface. Vega is the new-generation, highly versatile member of Arianespace's launcher family, alongside the heavy-lift Ariane 5 and medium-lift Soyuz, deployed from the Guiana Space Center. Vega is a European Space Agency (ESA) program, with Colleferro, Italy-based Avio as the industrial prime contractor. The performance and versatility of Vega allows Arianespace to provide the best possible launch solutions in low earth orbit for small- and medium-size payloads, spanning a wide range of applications (Earth observation, science, education, defense). With Vega C, Arianespace will offer increased performance and volume under the payload fairing for its passengers. The inaugural launch of Vega C is scheduled for 2021.

### **SpaceX Awarded about 886 Million USD for Satellite Internet Network**

December 7, 2020 - SpaceX was awarded 885.5-million-U.S.-dollar subsidies by the U.S. Federal Communications Commission to support the company's Starlink satellite internet network. SpaceX won

the funds in the commission's 9.2-billion-dollar "Phase I auction," which is set to provide high-speed broadband internet service to 5.22 million unserved homes and businesses. The commission estimated that the funding will expand broadband to more than 10 million rural Americans. "Phase I auction" is part of the commission's 20.4-billion-U.S.-dollar Rural Digital Opportunity Fund, which will be distributed over the next 10 years to encourage broadband providers to bring internet service to hard-to-reach areas in the United States. SpaceX's Starlink satellite internet constellation will consist of thousands of mass-produced small satellites in low Earth orbit, working in combination with ground transceivers, which would help bring internet access to remote or rural areas. So far, the company has launched nearly 1,000 satellites as part of its Starlink plan.

#### **Thales Alenia Space Chosen by Northrop Grumman to Provide the Pressurized Module for HALO**

December 7, 2020 - Thales Alenia Space has signed a contract with Northrop Grumman to develop the pressurized module for HALO (Habitation And Logistics Outpost) that will be one of the first two elements to form the lunar Gateway which will be launched in late 2023. HALO is planned to be launched together with the Power and Propulsion Element (PPE) and will be the initial habitat for astronauts visiting the Gateway. Its primary purpose is to provide basic living space for astronauts and prepare for their trip to the lunar surface. It will provide command, control and data handling capabilities, energy storage and power distribution, thermal control, communications and tracking capabilities. It will be equipped with 3 docking ports for visiting vehicles and future modules, as well as space for science and stowage. With NASA's Orion spacecraft docked, it will be able to sustain up to four astronauts for up to 30 days as they embark on, and return from, expeditions to the lunar surface. Thales Alenia Space will be responsible of the design and manufacturing of the HALO primary structure (the pressurized module), the module and vestibule pressure control, part of the meteoroid protection system as well as the structure interfacing the NASA docking systems.

#### **Millennium Space Systems Tests Space Debris Remediation Technology**

December 7, 2020 - Two Millennium Space Systems-built small satellites were successfully launched into low-Earth orbit last month – and the company's engineers, as well as the world's amateur satellite tracking community, now are watching them as they race back to Earth. The two satellites, part of the DRAGRACER controlled flight experiment, are demonstrating and maturing deployable tether technology that enables low-Earth orbiting (LEO) satellites to return faster and more-reliably, and help safely lessen the growing problem of orbital debris congestion. Two Millennium Space Systems-built small satellites, as part of the DRAGRACER controlled flight experiment, are demonstrating and maturing deployable tether technology that enables low-Earth orbiting satellites to return faster and more-reliably, and help safely lessen the growing problem of orbital debris congestion.

#### **Blue Origin BE-7 Engine Testing Further Demonstrates Capability to land on the Moon**

December 4, 2020 - Blue Origin's BE-7 engine program continues its testing at NASA Marshall Space Flight Center. This week, the program kicked off the fourth thrust chamber test series of its high-efficiency engine. The hotfire testing further validates the engine that will power Blue Origin's National Team Human Landing System (HLS) in support of NASA's Artemis program. Developed privately over several years, the BE-7 is the latest high-performance engine in the Blue Origin family, building upon the demonstrated success of the BE-3 PM hydrogen/oxygen engine that powers the New Shepard vehicle.

#### **Thales Alenia Space Signs Contract from ESA to Build Copernicus ROSE-L Satellite**

December 3, 2020 - Thales Alenia Space has signed a 482 Meuro contract with the European Space Agency (ESA) to build the Copernicus Radar Observation System for Europe in L-band (ROSE-L) environmental monitoring satellite, as part of Europe's Copernicus program, the first tranche being 90 Meuro. Copernicus is an Earth observation program led by the European Commission with the European Space Agency ESA coordinating and managing the Space component. It provides for the Sentinel satellites series and Earth observation data for environmental protection, climate monitoring, natural disaster assessment and other social tasks. Thales Alenia Space will serve as prime contractor for this program with Airbus Defence and Space as main partner for the radar instrument. This mission responds to the requirements expressed by both the Land Monitoring and the Emergency Management services. Its target applications are: soil moisture, land cover mapping, crop type and status discrimination, forest type/forest cover (in support to biomass estimation), food security and precision farming, maritime surveillance and natural and anthropogenic hazards. In addition, the mission will contribute to the operational monitoring of the cryosphere and polar regions including sea ice mapping and land ice monitoring. Other emerging applications will be possible by the synergetic and complementary observations with C-band and X-band

SAR systems.

### **China to Launch New Imaging Satellite for Arctic Routes Monitoring**

December 3, 2020 - China plans to launch a new Synthetic Aperture Radar (SAR) imaging satellite for monitoring Arctic shipping routes, the satellite developers said Thursday. Jointly developed by scientists from Guangzhou-based Sun Yat-sen University and the China Academy of Space Technology, the satellite has been designed to be put in a sun-synchronous orbit at an altitude of 720 km and to generate high-quality SAR satellite imagery with 50-meter resolution and 300 km width. According to lead scientist Cheng Xiao of the Sun Yat-sen University, the satellite is capable of providing a one-day revisit of most areas along maritime paths across the Arctic. Its data will be used to monitor and predict sea ice, climate change and marine disasters, offering important data support for the safety of Arctic shipping routes. Fast and high-precision monitoring of Arctic sea ice has become an urgent task for scientists. However, current in-orbit SAR satellites cannot fully meet the requirement, Cheng said, adding that the new satellite is expected to improve China's polar monitoring capability. The SAR satellite is likely to be launched in 2022.

### **EUMETSAT Confirms the Choice of Arianespace's European Launchers for its Future Missions**

December 2, 2020 - EUMETSAT has joined the signatories of the "joint statement on the institutional exploitation of Ariane 6 and Vega C" in favor of a European preference for launchers on institutional missions in Europe, initiated by the European Space Agency (ESA) in October 2018. In this framework, Arianespace and EUMETSAT will consolidate the launch planning for Meteosat Third Generation (MTG) and Metop-SG satellites, which already are in Arianespace's launch orderbook, as well as their successors – paving the way for launches on Ariane 6 and Vega C. EUMETSAT also confirms the option for Arianespace's launch of its third-generation MTG-I2 imaging satellite, and has converted it to a mission with Ariane 6. EUMETSAT announced the signing on December 2 of the "joint statement on the institutional exploitation of Ariane 6 and Vega C" in favor of a European preference for launchers on institutional missions in Europe, initiated by ESA in Madrid in October 2018. From now on, the current and future satellites in the EUMETSAT fleet will be launched as a priority by Ariane 6 or Vega C – the two future European launcher versions – and their launch manifest scheduling will be reworked accordingly. EUMETSAT also has chosen Arianespace for the launch of its MTG-I2 imaging satellite, a member of the third-generation Meteosat family (MTG), by confirming an option that was placed in July 2015 initially on Ariane 5, and will now utilize an Ariane 6.

### **Soyuz Flight VS24: Mission Success at the Service of the United Arab Emirates**

December 2, 2020 - Arianespace has successfully launched FalconEye, a very-high-performance Earth observation satellite for the United Arab Emirates Armed Forces. With the eighth launch in 2020, Arianespace once again confirms the reliability and flexibility of the Soyuz launcher, which just realized its 24th launch from the Guiana Space Center in French Guiana. Arianespace successfully launched the FalconEye optical observation satellite using a Soyuz rocket from the Guiana Space Center (CSG), Europe's Spaceport in French Guiana. FalconEye is a very-high-performance optical Earth observation satellite developed in a consortium led by Airbus Defence and Space and Thales Alenia Space for the United Arab Emirates Armed Forces (UAEAF). The FalconEye satellite offers very-high-resolution optical observation capabilities, coupled with a high-performance ground segment to receive and process images. This was the 23rd satellite launched by Arianespace that was produced jointly by Airbus Defence and Space and Thales Alenia Space. Airbus Defence and Space, prime contractor for FalconEye, was in charge of satellite design, integration and testing, as well as supplying the platform. Thales Alenia Space, as co-prime, supplied the high-performance payload, which features a very-high-resolution optical instrument and the image transmission subsystem. FalconEye was deployed by Arianespace's third Soyuz flight in 2020; the two previous missions were carried out in February and March from the Baikonur Cosmodrome. Two more Soyuz launches are planned before year-end: Flight ST29 from the new Russian launch site in Vostochny for OneWeb; and Flight VS25 from the CSG. With more than 1,900 launches to its credit overall since entering service in 1963, the Soyuz launcher is the most flexible and most utilized in its class.

### **Momentum Announces First Rideshare Mission to Moon**

December 1, 2020 - Momentum Inc. signed a deal with Canadensys Aerospace Corporation to deliver a payload to low lunar orbit (LLO). Canadensys will be the first customer to book Ardoride, Momentum's next-generation rideshare service vehicle. The agreement signed with Canadensys will deliver a 50 kg spacecraft to LLO in the 2023 to 2024 timeframe. With the signing of the deal, principals from both companies hailed the international and commercial cooperation that will further the development of in-space infrastructure services enabled by Ardoride, an entirely new class of vehicle. Currently in

development as Momentus' next generation transport and service vehicle, Ardoride will unlock high-altitude orbits like medium Earth orbits (MEO), geosynchronous orbit (GEO), highly elliptical orbits (HEO), or even lunar orbits for small- and medium-sized satellites and cargo. This revolutionary new vehicle is being designed for high delta-V missions of up to 5 km/sec, which will allow small and mid-sized satellites to access orbits at a very low cost. Fully reusable, Ardoride will be refueled after its initial mission and continue to conduct multiple, subsequent missions in space. The vehicle is being designed to deliver up to 1,200 kg to GEO and up to 800 kg to LLO. To enable low-cost rides to these orbits for nano and microsatellites, Momentus is announcing a regular rideshare program with annual and semi-annual Ardoride shuttle services beginning in 2023.

## EXECUTIVE MOVES

### **AsiaSat Names Tammy Nam as Vice President, Finance**

December 17, 2020 - Asia Satellite Telecommunications Company Limited (AsiaSat), Asia's premier satellite solutions provider announced the expansion of the company's management team with the appointment of Tammy Nam as Vice President, Finance. Reporting to AsiaSat's Chief Financial Officer, Sue Yeung, Tammy will manage the finance team and oversee all financial planning and analysis, accounting, business operations and reporting activities. Tammy is a member of the Hong Kong Institute of Certified Public Accountants and fellow member of the Association of Chartered Certified Accountants. With over 25 years of working experience in commercial and professional fields, her profound knowledge will add new impetus to the company's strategic transformation. Prior to joining AsiaSat, she was the Financial Controller of the South China Morning Post Publishers Limited overseeing its financial activities and planning, and participated in the M&A exercise when Alibaba Group completed its acquisition in 2016. Tammy had also worked in Deloitte as an auditor involving IPO exercises.

### **ESA Council Appoints Josef Aschbacher as next ESA Director General**

December 17, 2020 - ESA Council appointed Dr Josef Aschbacher as the next Director General of ESA for a period of four years. He will succeed Prof. Jan Wörner, whose term of office ends on 30 June 2021. Dr Aschbacher is currently ESA Director of Earth Observation Programmes and Head of ESRIN, ESA's centre for Earth Observation near Rome. Born in Austria, Dr Aschbacher studied at the University of Innsbruck, where he obtained Masters and PhD degrees in Natural Sciences. He has over three decades of experience working in international organisations, including ESA, the European Commission, the Austrian Space Agency and Asian Institute of Technology. Josef Aschbacher began his career in ESA in 1990 as a Young Graduate at ESRIN. From 1991 to 1993 he was seconded as ESA Representative to Southeast Asia to the Asian Institute of Technology in Bangkok, Thailand. From 1994 to 2001 he worked at the European Commission Joint Research Centre in Ispra, Italy, where he was, in his last post, the Scientific Assistant to the Director of the Space Applications Institute. He returned to ESA headquarters, in Paris, in 2001 as Programme Coordinator, where he was primarily responsible for advancing Copernicus activities within ESA.

### **Kleos Appoints Heribert Krämer as Chief Operating Officer**

December 16, 2020 - Kleos Space S.A. announce that it appointed Heribert Krämer as Chief Operating Officer who will join the team headquartered in Luxembourg on 1st January 2021. Mr Krämer is a highly qualified professional who brings a significant expertise to the company, having held diverse senior leadership roles with extensive experience in operations management, change management and business transformation. Mr Krämer's experience will be instrumental in driving growth for Kleos, managing upcoming change and managing the company's profitability. Previous roles of Heribert Krämer include APUS Solutions Sarl (Consulting) in Luxembourg, RBC Investor & Treasury Services S.A. (Financial Services) in Luxembourg, Switzerland and Canada, ABN AMRO Asset Management NV (Consulting) in the Netherlands and Otimo Business Solutions Sarl (Technology and Consulting) in Luxembourg.

### **Saturn Satellite Networks Announces the Change of CEO**

December 9, 2020 - Saturn Satellite Networks Inc., US Delaware Corporation that is building a new generation of light weight and low cost small GEO satellites up to 5kW announces the change of CEOs. Mr. Jim Simpson will transition from his current role as CEO of Saturn Satellite Networks to a member of the Board of Saturn at the end of 2020. Thomas Choi the Executive Chairman will also assume the role of acting CEO/President of Saturn while an industry search takes place to for the replacement CEO.

### **SpaceLink Named David Bettinger as CEO**

December 8, 2020 - SpaceLink, a company that is redrawing the map of space connectivity, announced it formed a corporation and named satellite communications innovator and industry visionary, David Bettinger as Chief Executive Officer. With significant spectrum rights in the Medium Earth Orbit (MEO), and the backing of Electro Optic Systems of Australia (EOS), SpaceLink will provide a secure, continuous, high-capacity data relay service between near Earth space and the ground. Mr. Bettinger has 30 years of experience in satellite communications systems engineering, and has played key roles at OneWeb, iDirect and Hughes Network Systems. As Chief Executive Officer, he will assume responsibility for the design, delivery, and operations of the SpaceLink MEO Satellite Relay System. Mr. Bettinger was a founding member of the OneWeb team and was responsible for the technology roadmap of the end-to-end communications network including the satellite payload, user terminals, and ground segment. As Vice President of the Advanced Development Group he led a team of satellite, aerospace, and communications engineers to design its first- and second-generation systems.

### **Virgin Orbit Adds Jim Simpson as Chief Strategy Officer**

December 7, 2020 - Virgin Orbit announced today that Jim Simpson has joined its executive team as the company's Chief Strategy Officer (CSO). With the company rapidly approaching its second launch demonstration and nearing the start of commercial service, Jim's addition will help the team keep a laser focus on meeting its commercial and government customers' needs in the dynamic, global market for responsive launch. Jim's celebrated career in space gives him experience in both the launch and the satellite industries, working with governments, start-ups, and everything in between. He recently wrapped up his tenure as the CEO of Saturn Satellite Networks, where he led the evolution of the geostationary Earth Orbit (GEO) field by changing the economics for both emerging developing nations and established organizations in the sector. He has also served as CEO of ABS (formerly Asia Broadcast Satellite), and served as the head of strategy for Aerojet Rocketdyne and Boeing Network and Space Systems.

### **Intelsat Completes Acquisition of Gogo Commercial Aviation, Announces Leadership Appointments**

December 1, 2020 - Intelsat completed its acquisition of the Commercial Aviation business of Gogo, creating the world's leading provider of inflight broadband connectivity to the commercial aviation industry. Intelsat announced several leadership changes, effective today, as part of the deal close. John Wade will remain president of Gogo Commercial Aviation, now a division of Intelsat. In this role, he will manage all aspects of the business, including product, sales, account management, quality and service delivery. Wade has more than 30 years of experience in the aviation industry; he joined Gogo in 2008, serving as Chief Operating Officer and General Manager of Gogo's Business Aviation division before assuming his current position. Bruno Fromont has been named Intelsat's Chief Technology Officer. He will lead spectrum strategy, asset planning, product development and innovation. Fromont previously served as Intelsat's Senior Vice President of Strategy and Planning, following vice president roles leading yield management, solutions development and asset management. Fromont has been a member of the Intelsat team for 20 years. Jon Cobin has been named Intelsat's Chief Strategy Officer, leading the company's corporate strategy and business development efforts. Cobin joins Intelsat from Gogo, where he served most recently as Chief Strategy Officer. Previously he held leadership positions within Gogo's Commercial Aviation business, including Chief Commercial Officer. Cobin had been with Gogo for 11 years.

### **BlackSky Names Uyen Dinh as Vice President for Government Relations and Strategy**

December 1, 2020 - BlackSky today announced Uyen (pronounced "Win") Dinh as its Vice President for Government Relations and Strategy. Ms. Dinh brings more than two decades of experience, knowledge, and insight in the federal legislative, authorization, and appropriations processes. She is well versed in national security policy, national and military intelligence programs and policies, geospatial intelligence (GEOINT), cybersecurity, and other national security space issues. Before joining BlackSky, Ms. Dinh served in the Department of Homeland Security as Deputy Assistant Secretary for the Office of Legislative Affairs. Prior to her executive branch service, she established Win Strategies, a strategic consulting company specializing in national security, space, ISR, and GEOINT issues. Earlier in her career she served as the vice president for government affairs at GeoEye, Inc., an early New Space company that built and launched high-resolution commercial imaging satellites. Previously, Ms. Dinh served as majority counsel for several U.S. House of Representative committees and offices including the House Permanent Select Committee on Intelligence (HPSCI), the House Armed Services Committee (HASC), the Committee on Government Reform and Oversight, and the Office of Rep. Tom Davis (R-Va.) specializing in national security and defense, intelligence, and homeland security issues.

### **NSR Report: Satellite Ground Segment a Key Enabler for Satcom Growth; \$137 Billion by 2029**

December 16, 2020 - NSR's *Global Satellite Ground Segment, 5th Edition* report, released today, forecasts global, cumulative revenues for the Commercial Satellite Ground Segment by 2029 at \$138 Billion. Data-driven applications are very dynamic with VSAT platforms growing at double-digit rates in the next 10 years. Backhaul, Consumer Broadband, and specialized Enterprise VSAT show the highest interest in this category. For Antennas and RF Chains, the focus is on high-end segments like Earth Stations, where opportunities will come from feeding Broadband networks and the transition to Q/V-Bands, or Mobility, with sophisticated requirements keeping margins at healthy rates. On the other hand, while volumes of Satellite TV are still unmatched by any other application, revenues are stagnant for STB and low-end antennas.

### **Amid Global Economic Turbulence, Governments Maintain Firm Financial Commitment to Space**

December 15, 2020 - Amid a tumultuous year for the global economy, government space program budgets maintained their growth trajectories for a fifth consecutive year. Following a period of strong budget tensions between 2010 and 2015, government space sector spending reached its highest recorded point in 2020 according to Euroconsult's latest "*Government Space Programs: Benchmarks, Profiles & Forecasts to 2029*" flagship research. With Covid-19 having no noticeable impact on government space budgets, the pandemic having occurred with budgets largely already decided, it remains however to be seen, whether governments can sustain these historic budget levels in the future. For the 10th year in a row, civil budgets expansion has outpaced military ones, totaling \$50.2 billion in 2020, representing 61% of total global spending, 10% higher than in 2007. Civil space budgets growth is boosted by the proliferation of new market entrants, ambitious space exploration and manned spaceflight programs and the appeal of a booming commercial market incentivizing governments to invest to help national industries capture a piece of this market.

### **NSR: Satcom Industry Contracts by 2.7%, but Bright Spots Exist in Post-COVID Era**

December 15, 2020 - NSR's *Satellite Industry Financial Analysis, 10th Edition* report, released today, finds an industry enduring stunted growth with bankruptcies and revenue declines across the satellite operator and service provider segments. However, some gains can be seen with Hughes, ViaSat, and SES all registering large wins on the back of Broadband, Mobility and Gov/Mil deals. While Integrated Operators and some data segments continue to post gains, video continues to struggle, shrinking the global satcom industry by 2.7% in 2019. Industry leaders like Speedcast and GEE were unable to weather the COVID-19 headwinds with low cash reserves - declaring bankruptcy, while Gogo sold its commercial aviation division to Intelsat in mid-2020. Notable bankruptcies also included Intelsat and OneWeb, which could not restructure debt or raise fresh funds. But there is a silver lining in all this. The earlier acquisitions of Inmarsat and Asiasat in 2018, the ST-Newtec deal, recent bankruptcies, along with the Intelsat-Gogo deal, all signal a new growth period from 2021-22. With LEO capacity from SpaceX, OneWeb in 2021-22, and Amazon & Telesat launching in 2024, the satcom industry finds it imperative to consolidate to control their captive markets and offer higher economic value.

### **Euroconsult Releases "Satellites to be Built and Launched by 2029" Report**

December 9, 2020 - In its latest analysis of satellite manufacturing and launch services, "*Satellites to be Built and Launched by 2029*", Euroconsult anticipates almost a quintupling in satellite demand in the next decade with an average of 1,250 satellites to be launched on a yearly basis. In comparison to the 260 yearly satellites launched in the previous decade, this skyrocketing number cements the structural changes occurring in the market and the industry, not only in the number of satellites but also in terms of satellite missions and operators, both governmental and commercial.

### **NSR: Satellite VSAT & Broadband Market Remains Resilient, on Path to \$217 Billion through 2029**

December 9, 2020 - NSR's *VSAT and Broadband Satellite Markets 19th Edition* report, released today, finds a resilient market, despite near term COVID-19 challenges and changing Key Performance Indicators. Limited growth is underway in 2020, and the market remains poised to emerge from the pandemic on a heightened growth path. Cumulative service revenue will grow at 15% CAGR, with \$198 Billion in total revenues by 2029, whereas equipment revenue is estimated to grow at 14% CAGR with \$20 Billion in revenues, during 2019-2029.

### **Global Earth Observation Manufacturing Revenues to Top \$83b over 2020-2029**

December 2, 2020 - In a new research titled, "Earth Observation Satellite Systems Market," Euroconsult, the world's leading authority on space and satellite-based application markets, forecasts that global demand for new Earth observation (EO) satellite systems this decade will result in 2,166 satellites being launched, which is expected to generate close to \$83.5 billion in manufacturing revenues. Euroconsult also projects corresponding EO satellite launch revenues to be close to \$25 billion for the next decade.

### **WTA Research Report: Teleports and the 5G Opportunity**

December 2, 2020 - For years, organizations from the 3GPP standards consortium to the European Space Agency have been working to ensure a place for satellite in the emerging 5G standard. Meanwhile, 5G has slowly emerged from potential to deployment. GSMA forecasts that 5G will account for 20% of global connections by 2025, at which time 4G subscriptions are expected to peak at 60% of mobile users worldwide. At this juncture, WTA takes a new look at teleports and 5G, updating the early conclusions of our 2018 report with the experience of teleport and satellite operators and the technology companies that drive their innovation. We explore market trends in 4G and 5G, the technology and operational requirements for competing in 5G and how meaningful the opportunity appears to be now and in the coming year.

## **UPCOMING EVENTS**

**APSCC 2021 Webinar Series**, Virtual Event, <https://apsccsat.com>

LIVE Every Tuesday 9AM HK I Singapore Time

**PTC'21**, January 17-20, Virtual Event, <https://www.ptc.org/ptc21/>

**SmallSat Symposium 2021**, February 8-11, Virtual Event, <http://smallsatshow.com/>

**Convergence India 2021**, March 24-26, New Delhi, India, <https://www.convergenceindia.org/>

**ConnecTech Asia 2021**, June 9-11, Singapore, <https://www.connectechasia.com/home/>

**Australasia Satellite Forum 2021**, June 22-23, Sydney, Australia. <http://talksatellite.com/EVENTS.htm>

**Satellite 2021**, July 26-29, Washington, DC., USA, <https://www.satshow.com/>

### **Editorials and Inquiries**

*News, comments, and suggestions can be sent to the editor at:*

*Inho Seo, Editor, APSCC Publications*

*Asia-Pacific Satellite Communications Council (APSCC)*

*T-1602, 170, Seohyeon-ro, Bundang-gu, Seongnam-si,*

*Gyeonggi-do, SEOUL 13590, Rep. of KOREA*

*Tel: +82 31 783 6247*

*Fax: +82 31 783 6249*

*E-mail: [editor@apscc.or.kr](mailto:editor@apscc.or.kr) Website: [www.apscc.or.kr](http://www.apscc.or.kr)*

### **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.apscc.or.kr](http://www.apscc.or.kr).*