

# APSCC Monthly e-Newsletter

## September 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 August 1 to August 31.*

### INSIDE APSCC

#### **APSCC 2021 Webinar Series Continues LIVE Every Tuesday 9AM HK I 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

#### **Arabsat Chooses AXESS for Delivering C-Band Services on Arabsat 5A Appendix 30B**

August 31, 2021 - AXESS Networks has been chosen by ARAB Satellite Communications Organization (ARABSAT) to provide connectivity and teleport services on Appendix 30B C-Band space segment on-board its ARABSAT-5A Satellite at an orbital location of 30.5°E with coverage footprint across Europe, Middle East, and Africa. AXESS global infrastructure is recognized by the WTA (World Teleport Association) and TIER-3 certified. Together with Arabsat, AXESS is establishing a state-of-the-art Appendix C-Band Network consisting of an antenna system equipped with latest technology. Arabsat-5A earth station is directly connected to the teleport distribution matrix allowing direct access to broad range of technology platforms covering most common use cases scenarios ranging from dedicated broadband SCPC solutions up to complex MF-TDMA and Mx-DMA HUB based network platforms. This multifaceted configuration is ideally suited for large trunk links of MNOs (Mobile Network Operators) and ISPs (Internet Service Providers). In addition, the new service will provide the ideal solution for multi-site networks with significant connectivity and data requirements. With its technical and commercial economic feasibility, it competes against terrestrial fibre connectivity by meeting the highest SLA requirements.

#### **ThinKom Satellite Antennas Qualified for Operation on Intelsat Flex Networks**

August 31, 2021 - ThinKom Solutions today announced that its land-mobile ThinSat 300® phased-array antenna has been qualified for use on Intelsat's FlexMove for Government satellite network. The qualification was awarded following an extensive battery of over-the-air tests conducted at Intelsat's Mountainside Teleport in Maryland with Intelsat General. As a result, the ThinSat 300 is now fully authorized for use with Intelsat's FlexMove service packages. Intelsat's FlexMove next-generation tiered service offerings are built around a high-performing multi-layered Ku-band satellite fleet centered on the Intelsat high-throughput Epic satellites combined with the world's largest wide-beam satellite constellation to create a global service area. Bandwidth is dynamically prioritized across different satellite beams automatically to meet demand. Based on ThinKom's patented VICTS (Variable Inclination Continuous Transverse Stub) technology, the field-proven ThinSat 300 phased array is a low-profile, lightweight vehicle-mounted antenna that provides high-quality voice, data and video communications-on-the-move (COTM). It supports robust IP networks, streaming video and voice-over-IP applications on- or off-road at high rates of speed without stopping the vehicle to deploy a fixed satellite dish or waiting for a blockage recovery.

#### **Panasonic Avionics New Connectivity Bundles Help Airlines Maximise Value of In-flight Connectivity**

August 31, 2021 - Panasonic Avionics Corporation, a world leader in in-flight entertainment and

connectivity services, has today announced a series of Connectivity Bundles designed to help airlines maximize their investment in in-flight connectivity. The new Connectivity Bundles by Panasonic Avionics are available to airlines looking to onboard an in-flight connectivity service for a fixed monthly fee. The bundles provide cost certainty, remove data limitations, and help airlines increase revenue generation. These new bundles give airlines the flexibility to build an in-flight connectivity offering to drive impact on passenger experience, customer loyalty, and operations with Panasonic Avionics' enterprise-wide solutions. It's the latest way that we are leveraging our market experience and expertise to help airlines differentiate themselves from their competitors and help drive Net Promoter Score (NPS).

#### **Katanga Awards Speedcast with Multi-year Connectivity Contract for HQ and Major Site**

August 31, 2021 - Speedcast, a leading communications and IT services provider, announced today that the company has been selected by Mining Company Katanga for a three-year contract to deliver satellite connectivity services to its headquarters and a major mine complex in the Democratic Republic of Congo (DRC). Mining Company Katanga (MCK Sarl) is a Congolese mining contractor based in Lubumbashi. Internet connectivity is critical for today's digital mine site, as it enables Internet of Things (IoT) capabilities, ensures safety of personnel and equipment on-site, and provides crew welfare applications for workers in the most remote locations. As part of the agreement, Speedcast will serve MCK's Lubumbashi headquarters and the Ruashi open-pit copper and cobalt mine under contract with MCK, delivering optimized wide-area networking (WAN) over high-throughput, very small aperture terminal (VSAT), C-band satellite service and content filtering. The solution will enable internet access, cloud-based applications, IoT and crew welfare applications across their operations. All services will be fully supported by Speedcast's 24x7 global Customer Support Centers (CSC).

#### **Comtech Awarded \$3.7 Million in Orders from the U.S. Army for Mobile Satellite Equipment**

August 30, 2021 - Comtech Telecommunications Corp. was awarded \$3.7 million of additional funding on the U.S. Army's previously announced task order award to provide ongoing system refurbishments, sustainment services and baseband equipment. This most recent funding continues to support the sustainment of the U.S. Army's family of ground satellite terminals, to include spare parts, repairs, upgrades, refurbishments, logistics and engineering services, and training.

#### **Panasonic Avionics Unveils Performance Data from Commercial Flight Using its XTSM Service on APSTAR 6D**

August 26, 2021 - Panasonic Avionics Corporation, China Eastern Airlines, APT Mobile SatCom Limited and China Telecom Satellite Communications ("CTSats") today achieved a new performance milestone for in-flight connectivity service over China, using Panasonic Avionics' new Extreme Throughput Satellite (XTS) service on the APSTAR 6D communications satellite. On a recent China Eastern Airlines' flight MU5105, passengers saw average speeds up to 100 megabits per second (Mbps) to the aircraft, with peak speeds reaching 200 Mbps. As a result, passengers were able to enjoy services like streaming video, video conferencing, downloading large files, and high-speed web browsing, on multiple devices, all at the same time. These new performance benchmarks were made possible by the APSTAR 6D satellite technology jointly designed by Panasonic Avionics and APSATCOM. The aircraft used had previously been equipped with in-flight connectivity hardware from Panasonic Avionics and no changes or upgrades to the existing antenna, wireless access points, satellite modem, or other critical component were required.

#### **Paradigm Hornet 100gx Terminal Receives Inmarsat Global Xpress Commercial and Military Ka-Band Type Approval**

August 26, 2021 - Inmarsat and Paradigm, announced that the Paradigm HORNET 100GX terminal has received full type approval for use over Inmarsat's Global Xpress (GX) network for commercial and military Ka-band. GX is the world's first and only commercial seamless mobile wideband service available worldwide. In U.S. government service since July 2014, GX has established itself as the gold standard for reliable communications across land, sea and air domains for assured mobile connectivity. The HORNET 100GX flyaway terminal is a compact-sized mobile multiband solution supplied with the PIM (Paradigm Interface Module), designed to simplify operation, reduce operating costs and provide a central unit for the integration and operation of satellite terminal hardware. Combining both optimal performance and functionality, the lightweight modular satellite terminal provides access to the most advanced IP satellite services on the high-throughput GX network. The terminal supports both GX and military Ka-band frequency bands with a single configuration, making it interoperable with military satellite communications (MILSATCOM) systems and GX without any hardware changes.

### **Kymeta and Comtech Announce Technology and Business Development Partnership**

August 25, 2021 - Kymeta and Comtech Telecommunications Corp. announced a technology and business development partnership. As a result, Kymeta has diversified its service offerings via network compatibility with Comtech's UHP-200 Universal Satellite Router and the Kymeta™ u8 terminal, and Comtech has expanded distribution of its recently acquired UHP product line and strengthened its ability to offer integrated VSAT solutions to its customers. Comtech's certified UHP platform will enable new and existing Department of Defense (DoD) and commercial customers to operate the state-of-the-art Kymeta u8 for cost-effective and seamless communication solutions through its VSAT router technology. Kymeta will begin offering UHP-based services in North America. The UHP-200 is an extremely fast VSAT router with aggregate throughput up to 450 Mbps and powerful UHP-real-time operating system. Its small size, low power consumption, and low count of active electronic components ensure the highest reliability with over 200,000 hours mean time between failures. UHP's disruptive TDMA technology can result in a 20% efficiency advantage over other TDMA solutions. When paired with Kymeta's next-generation solutions, government and commercial users will have access to efficient operating capabilities on the UHP network using the Kymeta u8. Kymeta technology is uniquely positioned to meet the demand for mobile broadband, providing internet access via satellite or hybrid satellite-cellular networks on a user-defined basis to enable connectivity while on the move and on the pause. When combined with Kymeta connectivity offerings and back-end support suite of services, Kymeta Connect™, customers have unique access to an experience and product that no other satellite antenna company offers today.

### **NSSLGlobal and Telesat Announce Strategic Co-operation Agreement for Telesat Lightspeed LEO Network**

August 25, 2021 - NSSLGlobal, a leading independent service provider of satellite communications to the government and maritime industry and Telesat have today signed a long-term strategic co-operation agreement to collaborate on the commercial and technical aspects of Telesat's new Low Earth Orbit (LEO) constellation, Telesat Lightspeed, initially consisting of a global mesh network of 298 state-of-the-art LEO satellites that are seamlessly integrated with on-ground data networks. Telesat Lightspeed will be the world's most advanced LEO network, optimised to serve the critical connectivity requirements of enterprise, government and mobility customers. The agreement will include the integration of Telesat Lightspeed services into NSSLGlobal's value-added network, providing an expanded service portfolio that delivers increased performance, flexibility and resiliency for customers. As a key commercial launch partner, NSSLGlobal will provide a European end-user testing and trials facility for Telesat Lightspeed services at its UK Headquarters. From this facility, NSSLGlobal will support Telesat with service testing, performance validation and customer onboarding to the Telesat Lightspeed network, and also conduct field testing of user terminals from a range of providers. NSSLGlobal intends to market Telesat Lightspeed services into the European Defence and Maritime markets.

### **Intelsat Achieves Support of Nearly 75% of Funded Debt on Comprehensive Financial Restructuring**

August 24, 2021 - Intelsat S.A. has achieved the support of key creditor groups across the capital structure on the terms of a comprehensive financial restructuring that would reduce the Company's debt by more than half – from nearly \$15 billion to \$7 billion – and position the Company for long-term success. The Company has filed an Amended Plan of Reorganization in its Chapter 11 proceedings pending before the U.S. Bankruptcy Court for the Eastern District of Virginia, Richmond Division, accompanied by an explanatory Disclosure Statement. The Amended Plan has the support of holders of approximately \$11 billion, or nearly 75%, of the Company's funded debt. These supporting creditors have executed a Plan Support Agreement that binds their support for the Company's Amended Plan. The Company is seeking Court approval of the Disclosure Statement and to establish procedures to solicit votes on the Amended Plan at a hearing scheduled for September 1, 2021.

### **OneWeb Announces LEO Flat-Panel Device for Terrestrial Broadband Service**

August 23, 2021 - OneWeb unveils its newest and smallest user terminal to offer high-speed Internet connectivity to businesses, governments and communities across the globe and in remote locations. Developed in partnership with Intellian Technologies, Inc. and Collins Aerospace, the Compact-Electronically Steered Antenna OW1 user terminal, will play a key role in realising OneWeb's vision of bringing high-performance, easily installed, affordable communications services to the world's least-connected regions and industrial sectors. The OW1 terminal will bring performance, adaptability and a low profile that will make it ideal for delivering OneWeb-powered satellite broadband in a wide range of settings. The flat-panel antenna at the heart of the unit is easily installed, only requiring basic mounting

and wiring skills to install and, coming in at 50x43x10 cm and around 10 kg, is about the size of a briefcase. The flat-panel antenna will integrate with a OneWeb satellite modem in an environmentally sealed outdoor unit, can be installed using an optional stabilized J-mount and will connect via a single combined power and data cable to an indoor unit that will in turn provide connectivity to the end user devices, such as laptops or routers. The new device follows the successful completion of OneWeb's 'Five to 50' launch programme that has delivered the satellites required to bring OneWeb services to Canada, the UK and Northern Europe later this year. OneWeb is on track to deploy its full fleet of satellites by 2022.

### **Lockheed Martin Develops High-Performance, Low Cost Hybrid Antenna for 5G, Radar and Remote Sensing Applications**

August 23, 2021 - Lockheed Martin has invented a new type of satellite dish technology with a wide range of use on satellites and ground terminals, including space-based 5G. The Wide Angle ESA Fed Reflector (WAEFR) antenna is a hybrid of a phased array Electronically Steerable Antenna (ESA) and a parabolic dish, and increases coverage area by 190% compared to traditional phased array antennas at a much lower cost. This antenna is part of a larger research and development investment in 5G.MIL™ technologies that will optimize and securely connect warfighting platforms to enable joint all-domain command and control (JADC2). Lockheed Martin is uniquely positioned, leveraging commercial best practices, strong partnerships, a broad supply chain and leadership expertise, to bring 5G connectivity and capabilities to the defense community rapidly and affordably.

### **Optus Primes for an All Australian Defence Program Tender with Raytheon Australia and Thales Australia**

August 23, 2021 - Optus, Australia's largest and most experienced satellite owner and operator, will lead a joint bid with Raytheon Australia and Thales Australia for the JP9102 Australia Defence Communication System program – delivering the next generation of satellite technology to the Australian Defence Force. Since 1985, Optus has been Australia's preeminent satellite provider, launching 10 satellites, operating 13 spacecraft, and providing support to over 100 international space programs. Since 2003, Optus has flown the C1 Satellite – which provides critical mission capabilities for Defence's operations and, at the time of launch, was the world's largest Defence-civilian spacecraft. Optus currently flies 7 satellites - including NBN's 2 Skymuster Satellites, with plans to deploy software-defined satellite Optus 11 in 2023 for Australia and New Zealand, making Optus the first satellite operator in Asia Pacific to launch a software-defined satellite that can provide both flexible concurrent broadcast and broadband services via a very high throughput satellite (VHTS) design.

### **RSCC's Express-AM5 Satellite Used in Restoring Communications and the Internet in Yakutia Regions affected by the Fire**

August 23, 2021 - The satellite activity makes it possible to prevent serious interruptions in communication. Forest fires have swept over 7 million hectares in Yakutia, Russia, burning out an area comparable to that of a small European country. Residential buildings and social infrastructure have been damaged, in some places there is no electricity supply, and communication facilities are not available. To restore the Internet in rural areas and put in place facilities for prompt notification of local inhabitants, specialists of the regional telecom operator ArcticTelecom use VSAT satellite communication stations and the capabilities of the Express-AM5 satellite at 140° E orbital position. Television, radio and satellite Internet are now available in almost all affected settlements thanks to the efficient work of the ArcticTelecom engineers.

### **Lockheed Martin Australia Partners with Clearbox Systems to Integrate Sovereign Satellite Communications Software**

August 23, 2021 - Lockheed Martin Australia (LMA) has announced the successful integration of Clearbox Systems' Foresight ESM software application as part of its campaign to build a sovereign satellite communication system for Defence. The work, undertaken as part of a teaming agreement for Defence Project JP9102 between LMA and Clearbox Systems, a leading Australian based defence and space SME, has seen engineers from both companies working together to minimise technical risk and maximise technical readiness to assure execution of the project on schedule and budget. The integration of Clearbox's proprietary Foresight ESM software has also been used to demonstrate the agility of LMA's satcom control segment, which serves as the crucial link between the satellites and ground stations in Defence's future sovereign satcom system. Based on modular, open architecture software, LMA's control segment is specifically designed for rapid integration of third-party, best-of-breed software products.

### **Viasat, Telefónica Global Solutions Make High-Speed, Reliable Satellite Internet Service Available to Even More Businesses across Brazil**

August 19, 2021 - Viasat Inc. and Telefónica Global Solutions announced a partnership to increase the availability of fast, reliable satellite internet service aimed at businesses across Brazil. Per the agreement, Telefónica Global Solutions will be a wholesale distributor of Viasat's high-speed satellite internet services in Brazil, serving businesses across the entire country. According to a study by Cetic.br, the research arm of the Brazilian Network Information Center (NIC.br), the percentage of businesses in Brazil that use digital tools like instant messaging apps such as WhatsApp increased from 26% to 46% during the COVID-19 pandemic. Yet, businesses located in hard-to-reach regions of the country, where terrestrial internet service is unavailable are often left behind – unable to capitalize on advanced digital services, programs and tools. The Viasat/TGS collaboration aims to provide businesses – anywhere in the country – an opportunity to join the digital community and enhance business operations and customer engagements. Viasat's current satellite internet service uses bandwidth from the Telebras SGDC-1 satellite. Viasat plans to augment the SDGC-1 network with a next-generation satellite constellation: ViaSat-3. The first-of-three satellites (for the Americas) is scheduled to launch in 2022 and will deliver even more data and higher speeds across Brazil.

### **Gilat to Support SES in Backhauling, Enterprise and USO in South America**

August 19, 2021 - Gilat Satellite Networks Ltd., a worldwide leader in satellite networking technology, solutions and services, announced today that SES, the leader in global content connectivity solutions awarded Gilat a multi-million-dollar contract for multiple broadband applications in Latin America. Gilat's multi-service platform will support SES in cellular backhauling, enterprise and Universal Service Obligation (USO) projects, as SES extends services into Latin America with the deployment on new regional hubs. Gilat's multi-service single platform, SkyEdge II-c and its wide set of fine-tuned VSATs enable satellite connectivity throughout Latin America's most remote regions, for a wide variety of applications. Gilat's robust networks enable cellular backhaul for mobile operators, connectivity for government and enterprise applications and multiple education projects in support of closing the gap of the digital divide.

### **Fujitsu and NEC to Provide Interoperability Testing between 5G Base Station Equipment in US and UK**

August 19, 2021 - Fujitsu Limited and NEC Corporation have begun developing technologies for interoperability testing between 5G base station equipment conforming to O-RAN specifications at Fujitsu's US laboratories and NEC's UK laboratories. This initiative will be implemented as part of the 'Post 5G Infrastructure Enhancement R&D Project' under the New Energy and Industrial Technology Development Organization (NEDO) of Japan. Both companies are scheduled to build a verification environment using these technologies in their respective laboratories from August of this year, then will begin interoperability testing. Leveraging this verification environment offers the potential to significantly streamline interoperability verification between base station equipment from different vendors. Through this initiative, Fujitsu, NEC, and NEDO will accelerate the global reach of base station equipment that conforms to O-RAN specifications, and contribute to stimulating growth and innovation in the open 5G market. With the start of 5G commercial services in various countries, post 5G with enhanced functions such as ultra-low latency and multiple simultaneous connections is expected to be used in a variety of industries, such as automobile factories. It is expected that the technologies that realize these functions will serve as the core of Japan's competitiveness.

### **Boeing and Alaska Airlines Commence Flight Trials for Key New Components of Inmarsat's Iris Air Traffic Modernisation Programme**

August 18, 2021 - Inmarsat has announced its participation in this year's Boeing ecoDemonstrator programme. The global initiative, which aims to enhance the sustainability and safety of air travel by testing the world's most promising technologies, has commenced the first flight trials for important new components of Inmarsat's Iris air traffic modernisation solution. Powered by the Inmarsat ELERA global satellite network, Iris enables real-time collaboration between pilots, air traffic controllers and an airline's operation centre using cost-effective, secure and highly resilient datalink communications. As a result, they can calculate the shortest available routes, determine flight trajectories and cruise at optimum altitudes, while also receiving the latest digital information, such as weather updates. This not only improves airspace usage to accommodate future growth, but also allows airlines to minimise delays, save fuel and reduce the environment impact of their operations. Iris capabilities have been enhanced recently with the introduction of next-generation ATN/IPS (Aeronautical Telecommunication Network using

Internet Protocol Suite) satellite communications, which are currently being finalised as the global standard for air traffic control communications to and from the aircraft. This technology is being trialled for the first time as part of the Boeing ecoDemonstrator flights, marking an important step forward in Iris' global rollout and unlocking significant benefits in service scalability, bandwidth and throughput for Air Navigation Service Providers (ANSPs) and airspace users.

### **SES's O3b mPOWER Tapped by Microsoft for Azure Network Cloud Services**

August 18, 2021 - SES announced Microsoft as the first cloud provider customer for its next-generation medium earth orbit (MEO) system – O3b mPOWER. Microsoft plans to leverage the MEO high-performance connectivity services to showcase its Azure Orbital solutions that integrate satellite connectivity with Azure services. Microsoft will use SES's current MEO to provide connectivity now before migrating to O3b mPOWER next year. SES's current O3b and upcoming O3b mPOWER systems operate in the medium earth orbit, around 8,000 km above earth's surface. When fully operational in 2022, O3b mPOWER will deliver an unprecedented increase of flexibility and throughput speed and capacity to any Azure Network locations on earth. Microsoft's plans to deploy O3b mPOWER at Azure Network locations is another step in the close collaboration between the two companies. SES is co-locating four of its O3b mPOWER gateways at or near Azure data centres; is the founding medium Earth Orbit (MEO) satellite connectivity partner for Microsoft Azure Orbital; is an Azure ExpressRoute for satellite partner; and is the first satellite operator to implement Open Network Automation Platform (ONAP) using NFV technology on Azure.

### **Spacecom and Get SAT Demonstrate Superior Results for Micro Sling Blade Ka-Band ESA on AMOS-17 Advanced Satellite**

August 18, 2021 - Spacecom and Get SAT announced the successful testing of Get SAT's next generation Micro Sling Blade Ka-Band Satcom-On-The-Move terminal on AMOS-17's advanced, digital Ka-Band. The test was hosted at the SMS Teleport in Rugby, UK. AMOS-17, the most advanced HTS satellite serving Africa, was chosen by Get SAT for testing its newest electronically steered antenna (ESA), bringing together optimal G/T and a high performing satellite terminal that resulted in an unparalleled throughput of 5 MBPS forward and 25 MPBS return rate. This combination of AMOS-17's capabilities and the Get SAT Micro Sling Blade ESA offers superior performance satellite communication, flexible solutions, and competitive advantages for customers in aviation and land-on-the-move markets. Get SAT's scalable ESA terminal is fully integrated, all-in-one, modem-agnostic solution that includes a built-in Get SAT Micro Modem and GS950 modem (iDirect 950). As an off-the-shelf, end-to-end terminal with industry leading SWaP and no trade-offs, it provides reliable communications at a low-profile to meet a range of governments, defense and first responder applications.

### **Avealto to Begin Customer Acquisition for Wireless Infrastructure Services Available in 2022 Provided by High Altitude Platform**

August 17, 2021 - AVEALTO Ltd., a UK-based company, was formed to design, build and operate a fleet of High Altitude Platform ("HAP") vehicles which can transparently replace point-to-point satellite services at a lower cost, with higher quality service. Recent improvements in the efficiency of batteries and solar cells now have made it possible to create a commercially viable HAP vehicle optimized to provide Wireless Infrastructure. Since its formation in 2013, AVEALTO has maintained a very a low profile, as it went through the design and development process. This process is near completion. AVEALTO began flight testing on June 28th, 2021 under the supervision of the UK Civil Aviation Authority ("CAA"), with the goal of obtaining UK Flight Approval. The company expects to begin commercial services by end of 2022. It is likely that the production of AVEALTO HAP vehicles will be relatively limited the first 1-2 years. Customers that make an early commitment to services will obtain preferential pricing and service availability. "Early adopter" customers will also be able to help select the initial regions for HAP services coverage. Over 3 billion people in the world do not have routine access to the internet. In addition, hundreds of millions of people in remote areas must rely on high cost satellite links. AVEALTO HAP vehicles can provide "satellite equivalent" services at a lower cost than satellites, and with higher quality.

### **ST Engineering iDirect and Gilat Telecom Deliver Remote Cellular Backhaul Network to the DRC**

August 17, 2021 - Teams from ST Engineering iDirect and Gilat Telecom have achieved the successful remote installation and commissioning of two Newtec Dialog® hubs to power cellular backhaul services for mobile network operator, Vodacom, in the Democratic Republic of Congo (DRC), the largest country in Sub-Saharan Africa. The new hubs enabled Vodacom to migrate its VSAT-based 2G network to 3G across 150 Base Transceiver Station (BTS) sites with the Base Station Controller located in Kinshasa. The new

deployment replaces traditional SCPC links and increases efficiency in facilitating 3G data traffic. Dialog's Mx-DMA return technology was a key consideration in Vodacom's selection as it enables the network to automatically adjust in real-time with daily fluctuations in bandwidth demand, saving both bandwidth and cost and offering enhanced optimization of cellular traffic. Dialog also enables effective management of a variety of different modems all on the same platform, simplifying and streamlining an otherwise complex operation.

### **Hughes Awarded IDIQ Contract by U.S. Air Force to Offer Enterprise Satellite Networking Solutions**

August 17, 2021 - Hughes Network Systems has been awarded one of several prime positions on an indefinite-delivery/indefinite-quantity (IDIQ) contract with a ceiling of \$950,000,000 by the U.S. Air Force to support its Advanced Battle Management System (ABMS). Hughes will offer flexible satellite communications solutions that leverage open systems design, modern software and algorithm development in order to enable ABMS, part of the broader Joint All Domain Command and Control (JADC2) effort to deliver information accessibility to the warfighter. Our leading, open standard, interoperable network solutions enable Department of Defense networks to operate as one. This IDIQ contract is part of a multiple award, multi-level security effort to provide development and operation of systems as a unified force across all domains (air, land, sea, space, cyber, and electromagnetic spectrum) in an open architecture family of systems that enables capabilities via multiple integrated platforms.

### **Panasonic Avionics Upgrades In-flight Mobile Connectivity with Gigsky Partnership**

August 17, 2021 - Panasonic Avionics Corporation is enhancing its in-flight mobile connectivity offering through a strategic partnership with GigSky, a global mobility provider based in Silicon Valley, California. The partnership between Panasonic Avionics, its subsidiary AeroMobile and GigSky enables any eSIM-equipped mobile phone user to enjoy their in-flight mobile connectivity service – regardless of network operator – on selected airlines and flights. By downloading the award-winning GigSky app prior to departure, passengers can effortlessly pay for and access a daily connectivity pass.

### **ThinKom Unveils New VICTS Antennas for Space Payloads**

August 17, 2021 - ThinKom Solutions today announced the development of a new family of phased-array antennas for deployment on satellites and other space vehicles. The antennas are based on ThinKom's proven VICTS (Variable Inclination Continuous Transverse Stub) technology. The multi-frequency full-duplex antennas are designed for operation on geostationary and non-geostationary satellites using C-, X-, Ku-, Ka-, Q-, V-, E- and W-band frequencies. They can provide steerable high-capacity inter-satellite links as well as space-to-earth and earth-to-space feeder and user links. The new ThinKom payload antennas are compact and lightweight, with a 30-cm diameter antenna weighing less than 5 kg. They can be nested for multi-beam applications without the blockages that can occur with multiple parabolic dish arrays. They can also support digital beam forming within regional user beams. The space payload VICTS antennas are designed with an aluminum structure and space-compatible components to function reliably under extreme conditions of radiation, shock, vibration and temperature. The compact highly reliable conformal arrays do not require any post-launch deployment mechanisms, eliminating the added weight and complexity of traditional satellite antenna systems. The high-efficiency VICTS antenna architecture enables a smaller mounting size and volume for a given level of performance, as well as lower inertia than traditional satellite designs. The result is extremely low power consumption, a critical requirement for space applications. Other key features include 80-degree scan angle coverage, wide instantaneous channel bandwidth up to 2 GHz, polarization diversity, low sidelobe emissions and continuous jitterless high-agility scanning.

### **South Korean Equity Partner Hanwha Joins OneWeb**

August 12, 2021 - Hanwha has announced a USD \$300m equity investment by Hanwha Systems ("Hanwha") in OneWeb, the Low Earth Orbit (LEO) satellite communications company. Hanwha brings further defence capabilities and the latest antenna technologies to OneWeb, alongside relationships to new government customers and expanded geographical reach. This investment brings OneWeb's total equity investment since November 2020 to USD \$2.7bn with no debt issuance. The investment is expected to be completed in the first half of 2022, subject to regulatory approvals. Hanwha Systems of South Korea invests USD \$300m to OneWeb, brings advanced technology capabilities. OneWeb's first generation fleet of 648 satellites that will deliver global coverage in 2022 is fully funded. To date, the company has launched 254 satellites into orbit, with another launch planned this August from Baikonur, Kazakhstan. Thanks to the success of recent launches, OneWeb's network will be ready to offer connectivity services from 50th parallel and above by the end of 2021.

### **Inmarsat Unveils ELERA, the Global Network for IoT, Safety and Mission Critical Connectivity**

August 12, 2021 - In its second major announcement in two weeks, Inmarsat is today unveiling Inmarsat ELERA; a global narrowband network that is ideally suited to the rapidly evolving world of the Internet of Things (IoT) and for global mobility customers, including aviation, maritime, governments and select enterprises. ELERA builds on Inmarsat's #1 position in Mobile Satellite Services (MSS) and will be a springboard for innovation, unlocking, accelerating and scaling pioneering use cases on land, at sea and in the air. Its foundation is Inmarsat's world class L-band network and incorporates new innovations ranging from higher speeds to smaller, low cost terminals and [the previously announced] Inmarsat-6 satellites, the first of which (I-6 F1) is scheduled to launch before the end of the year. Coming just 14 days after Inmarsat announced ORCHESTRA, the world's first network to combine GEO, LEO and 5G into one harmonious global communications solution, ELERA underlines Inmarsat's strategic focus on the global mobility segment of satellite communications. It is also a signal of a company with momentum, delivering major technological innovations and growth.

### **Telesat to Receive US\$1.44B in Canadian Government Investment to Support Telesat Lightspeed**

August 12, 2021 - Telesat announced today that it expects to receive a US\$1.44 billion investment from the Government of Canada to support Telesat Lightspeed, the world's most advanced low Earth orbit (LEO) satellite network. This investment will drive economic growth and innovation in Canada and help ensure affordable broadband Internet and LTE/5G connectivity for all Canadians. Under the terms of the agreement, the Government of Canada would provide a loan of US\$790 million and make a US\$650 million preferred equity investment in Telesat Lightspeed. In return, Telesat will commit to make certain minimum capital and operating expenditures in Canada in connection with the program and, in addition, to create hundreds of Canadian high-quality, full-time jobs and co-ops and provide academic scholarships. Through Telesat and its Canadian supply chain, the Telesat Lightspeed program is expected to support over 1,500 Canadian jobs, largely in STEM. Telesat Lightspeed is the largest space program ever conceived in Canada and will be the most innovative, cutting-edge broadband satellite network in the world. The Telesat Lightspeed network is initially comprised of 298 highly advanced satellites with next-generation technologies to deliver multiple Gbps speeds and fibre-like connectivity everywhere in Canada and across the globe.

### **Comtech Telecommunications Corp. Awarded \$3.6 Million in Contracts for Military X-band SSPAs**

August 12, 2021 - Comtech Telecommunications Corp., a global leading provider of next-generation 911 emergency systems and secure wireless communications technologies, announced today, that during its fourth quarter of fiscal 2021, it was awarded multiple contracts aggregating \$3.6 million from a U.S. system integrator for X-band SSPAs and BUCs for transportable satellite communication terminals. Secure and available satellite communications are required to support all phases of a mission from the command center to the tactical edge. Comtech's X-band SSPAs and BUCs are rugged and compact, supporting voice, video and data communications among dispersed elements of the battle force.

### **OneWeb and Northwestel Sign MoU to Expand Connectivity Solutions across Northern Canada**

August 11, 2021 - OneWeb and Northwestel, northern Canada's largest telecommunications provider, announced the signing of a Memorandum of Understanding (MoU) to expand remote mining, enterprise business and government broadband options in northern Canada. The announcement follows the successful completion of OneWeb's 'Five to 50' programme that has delivered the satellites required to bring OneWeb services to Canada, the UK and Northern Europe later this year. OneWeb and Northwestel MOU expands mining, enterprise business and government broadband options in northern Canada. As part of the agreement, the companies will collaborate on opportunities to deliver new connectivity services to remote mines, businesses and governments across Canada's north using OneWeb's low Earth orbit satellite backbone. OneWeb continues to build momentum and execute the deployment of its network at pace and is seeing increasing demand from customers, particularly in remote locations. This agreement will allow the company to harness Northwestel's significant experience, northern presence and resources in serving Canada's northern territories.

### **Stable Road Acquisition Corp. Stockholders Approve Proposed Business Combination with Momentus**

August 11, 2021 - Stable Road Acquisition Corp. announced today that stockholders of Stable Road approved the proposed business combination with Momentus Inc. ("Momentus"), a U.S. commercial space company that plans to offer in-space infrastructure services, at the special meeting of stockholders (the "Special Meeting") held on August 11, 2021. The combined company will retain the Momentus name and



its securities are expected to begin trading on the NASDAQ Global Select Market under the new symbol "MNTS" for Momentus stock and "MNTSW" for Momentus warrants on August 13, 2021, following the close of the business combination, which is expected to take place on August 12, 2021. Over 97% of the votes cast at the meeting voted to approve the business combination. Holders of approximately 55% percent of Stable Road's issued and outstanding shares cast votes at the Special Meeting. Stable Road also announced that an aggregate of approximately 3.5 million shares of Stable Road's Class A common stock were submitted for redemption by public stockholders in connection with the vote, representing approximately 20% of all issued and outstanding shares of Class A common stock. After giving effect to the redemptions, approximately \$137 million will be disbursed from Stable Road's trust account to Momentus upon the closing of the business combination which, when combined with the \$110 million equity PIPE expected to be consummated concurrently with the closing, will provide Momentus with approximately \$247 million in total available cash, before transaction fees, expenses and payments related to the previously announced repurchase of its co-founders' shares.

### **NTT Launches First Globally Available Private 5G Network-as-a-Service Platform**

August 11, 2021 - NTT, a global technology and business solutions provider, today announced the launch of NTT's Private 5G platform (P5G), the first globally available private LTE/5G Network-as-a-Service platform. With a complete end-to-end stack of services that goes beyond the network, NTT P5G helps Chief Information Officers and Chief Digital Officers leverage the benefits of private 5G to solve business problems and innovate to keep pace with the future of enterprise. NTT P5G leverages design thinking principles to integrate security, control and privacy by design, providing performance and cost benefits with a clear ROI. Running on a cloud-native architecture, the platform can be delivered via cloud, on-premises, or at the edge. The platform is pre-integrated with leading network and software partners, allowing enterprises to secure, scale and segment their network flexibly. With patent-pending MicroSlicing™ technology, NTT P5G allows mission-critical apps to leverage the advantages of private 5G. Fueling enterprise digital transformation with cloud-based economics and automation is at the heart of NTT's vision for private 5G. NTT is focused on driving the global acceleration of private 5G to meet the fast-evolving needs of enterprises across industries, including automotive, manufacturing, healthcare, and retail to create unprecedented alignment of data, connectivity, security, and communications. NTT is the only provider that offers a best-in-class global network, deep vertical expertise, and a full suite of application development and management capabilities.

### **Keysight Solutions Selected by TMYTEK to Verify Performance of Antenna-in-Package Designs in 5G and Satellite Systems**

August 11, 2021 - Keysight Technologies, Inc. announced that TMYTEK, a Taiwan-based startup of mmWave technology, has selected Keysight solutions to verify the performance of antenna-in-package (AiP) designs that are used in 5G and satellite systems. MYTEK selected Keysight's Open RAN Studio to validate the functional operation and performance of a radio unit (O-RU). The solution integrates Keysight software and hardware platforms to construct, play, capture and measure O-RAN traffic. This enables TMYTEK to verify that the O-RU is compliant to the latest O-RAN specifications. Keysight's Open RAN Studio can be combined with Keysight's signal generation and analysis platforms, as well as Keysight's PathWave Signal Generation (Signal Studio) and Vector Signal Analysis (89600 VSA) software. This allows TMYTEK to access a comprehensive range of cross domain and multi-channel O-RAN protocol measurements in both downlink (DL) and uplink (UL).

### **SpaceLink and Blue Marble Communications Join Forces to Develop Advanced Optical Terminals**

August 10, 2021 - SpaceLink announced that it formed a strategic partnership with Blue Marble Communications to accelerate development of advanced optical terminals. The company is driving innovation for its relay service, which uses both optical and radio frequency links for secure, continuous, high-capacity communications between spacecraft and the ground. Blue Marble is a leading supplier of high-performance, cost-effective, scalable space-qualified high-speed data, RF and optical communications components. The terms of the deal between the two companies, valued at more than \$10M, include technological evolution and purchase of terminals for intersatellite links compatible with the Space Development Agency (SDA) standards. A diversified supply of terminals for optical intersatellite links (OISLs) helps SpaceLink manage risk and provide options for its customers.

### **Comtech Telecommunications Corp. Awarded US\$1.0 Million Contract for High-power Amplifiers**

August 10, 2021 - Comtech Telecommunications Corp., a global leading provider of next-generation 911 emergency systems and secure wireless communications technologies, announced today, that during its

fourth quarter of fiscal 2021, it was awarded a US\$1.0 million contract for high-power amplifiers from a major domestic prime contractor. These amplifiers, which utilize the latest in solid-state GaN transistor technology, are key transmit elements in a data communication system. They add to an installed base of Comtech solid-state high-power RF amplifiers previously delivered to this major domestic prime contractor. The contract was awarded to Comtech PST Corp. which is a leading independent supplier of high-power, high performance RF microwave amplifiers and control components for use in a broad spectrum of applications including defense, medical, satellite communications systems and instrumentation.

### **C-COM Phased Array Antenna Achieves Significant Step towards Commercialization**

August 10, 2021 - C-COM Satellite Systems Inc., a leading global provider of commercial grade mobile auto-deploying satellite antenna systems, announced today that its electronically steerable phased array antenna has passed another milestone test, delivering good results at different scanned angles over the Telesat Anik F3 satellite. The Company will continue to move forward and will conduct additional tests to verify the performance of the antenna over several different satellites, including GEO/LEO constellations, and to confirm mobility and interoperability of the new design. This advanced phased array Ka-band antenna is expected to open new mobile vertical markets (land, marine, aero) for the Company. The prototyping of a 4000-element antenna using the same building blocks to build the 1000-element antenna is in progress. The commercialization planning phase for this new antenna is underway.

### **Speedcast and HudsonCyber Team Up to Help Companies Regain Cyber Control**

August 10, 2021 - Companies can protect themselves from cyber attacks and become compliant with new international cybersecurity regulations by using an award-winning solution, launched today by Speedcast and HudsonCyber. Cyber attacks and data breaches have become an imminent threat for all companies. With today's sophisticated attacks, cyber criminals only need to find one weakness to a company's system and its operations can be shut down in a matter of seconds. Speedcast CyberInsights™ is based on a Lloyd's List Intelligence Digital Innovation Award-winning risk management and assessment service that enables decision-makers of any organization to evaluate their current cybersecurity protection quickly and cost-effectively. Built on Amazon Web Services (AWS), the CyberInsights platform integrates industry-leading cybersecurity standards, frameworks and standardized practices and aligns with International Maritime Organization's (IMO) 2021 Guidelines on Maritime Cyber Risk Management, as well as other industry-leading cybersecurity standards, frameworks and standardized practices.

### **MEASAT to Retire MEASAT-3**

August 6, 2021 - MEASAT Global Berhad ("MEASAT") will retire its MEASAT-3 satellite after an anomaly on 21 June 2021. The incident resulted in a complete outage of service and is still under investigation in partnership with our satellite provider Boeing Satellite Systems ("BSS"). Despite maintaining continuous telemetry and command control of MEASAT-3, further testing and recovery efforts found that the satellite could not re-enter service. The satellite will be de-orbited in the following weeks. MEASAT-3, a Boeing 601 satellite, had provided satellite communication services for almost 15 years since its launch in December 2006. The spacecraft, manufactured by BSS, equipped with C-band and Ku-band transponders that cover over 100 countries across Asia, Eastern Europe, the Middle East and Africa. MEASAT is currently finalising the launch date of MEASAT-3d for early 2022, which is expected to restore its unrivalled in-orbit satellite redundancy at the company's key orbital hotspot 91.5°E, providing Direct-to-Home (DTH), Broadcasting and Telecommunications services for the region, besides significantly enhancing broadband speed of up to 100 Mbps in areas with limited or without any terrestrial connectivity throughout Malaysia.

### **Intelsat and Orange Collaborate to Deliver Mobile Services and Provide 3G/4G in French Guiana**

August 6, 2021 - Intelsat announced it is expanding its relationship with Orange, one of the world's leading telecommunications carriers, to provide cellular backhaul services in French Guiana that will provide universal services and increase access to both telecommunications and advanced connectivity solutions for Orange customers. By integrating Intelsat-enabled cellular backhaul and support services into its network planning strategy, Orange will be able to extend mobile broadband coverage and connect more subscribers across Kaw, Camopi, Grand-Sancti, Papaïchton and Maripasoula, ensuring consistent connectivity with a reliable service and great user experience. Orange will leverage the capabilities of the Intelsat 10-02 (IS-10-02) satellite to upgrade and expand its existing 2G network and provide reliable 3G/4G services in French Guiana, including to some of the most remote and rural areas of the territory. IS-10-02 had its life extended earlier this year after successfully docking with Northrop Grumman's Mission Extension Vehicle-2 (MEV-2).

### **Telesat Lightspeed to Bridge Ontario's Digital Divide Through \$109 Million Partnership with the Government of Ontario**

August 6, 2021 - Telesat and the Government of Ontario have partnered to bridge the digital divide in Ontario by leveraging Telesat's advanced, state-of-the-art Low-Earth Orbit (LEO) satellite network, Telesat Lightspeed. This \$109 million agreement will futureproof and diversify Ontario's connectivity infrastructure, lay the groundwork for continued development and commercialization of Canadian satellite technologies and pave the way for future economic growth and jobs. Through this 5-year partnership, a dedicated Telesat Lightspeed capacity pool will be made available at substantially reduced rates to Canadian Internet service providers (ISPs), including Indigenous owned and operated ISPs, as well as mobile network operators to expand high-speed Internet and LTE/5G networks to Ontario's unserved and underserved communities. Telesat Lightspeed is the only LEO network capable of delivering multiple Gbps of broadband capacity into a community, giving telecom operators the ability to offer a wide range of affordable, high-speed broadband plans and unlimited data to consumers and businesses as well as next-generation 5G wireless services. Furthermore, with multiple satellites always in view overhead, and the ability to dynamically route traffic to avoid weather events, the Telesat Lightspeed network provides unparalleled resiliency with always-on, high-quality connectivity.

### **Providence and Apax Enter into Exclusivity for the Sale of a Majority Shareholding in Marlink**

August 6, 2021 - Providence Equity Partners, a premier private equity firm that specialises in the media, communications, education, software and services industries, and Apax Partners SAS, a leading European private equity firm based in Paris, today announced that they have entered into exclusive discussions for the sale of a majority shareholding in Marlink. Headquartered in Paris and Oslo, Marlink is a world leading satellite service operator offering high quality, integrated smart network connectivity and digital services to a wide range of maritime, enterprise, government and NGO customers in remote locations. Any transaction would be subject to customary and regulatory approvals, including the completion of necessary consultations with the Company's works council.

### **Royal Australian Air Force Selects Lockheed Martin Australia For Next Phase Of Program To Develop 21st Century Joint Air Battle Management System**

August 5, 2021 - Lockheed Martin Australia welcomed the announcement by the Minister for Defence, The Hon Peter Dutton MP, and the Minister for Defence Industry, The Hon Melissa Price MP, on the Government's official down selection of Lockheed Martin Australia, as one of the two primes selected, to participate in the Royal Australian Air Force's AIR6500 Phase 1 Project (AIR6500-1): Competitive Evaluation Process Stage 2 (CEPS2). AIR6500-1 will provide the Australian Defence Force (ADF) with a Joint Air Battle Management System that will form the architecture at the core of the ADF's future Integrated Air and Missile Defence (IAMD) capability. This will provide greater situational awareness and defence against increasingly advanced air and missile threats, as well as give the ADF increased levels of interoperability with coalition partners. Lockheed Martin Australia will continue partnering with industry, academia and government to develop, integrate, build, and sustain future technologies that can be integrated into an open architecture framework to support AIR6500-1. This approach will ensure innovative small to medium Australian high-tech businesses remain at the core of shaping Australia's future defence capabilities.

### **Inmarsat, Atlantic Bridge Capital and Civic Connect Launch 'Insight Terra' Serving Mining Sector**

August 4, 2021 - Inmarsat, the world leader in global mobile satellite communications, global growth equity firm Atlantic Bridge and US-based 'born in the cloud' software developer Civic Connect have today launched Insight Terra, to respond to the risk management and environmental monitoring needs of mining organisations worldwide. The new entity builds on Tailings Insight – an award-winning integrated solution for monitoring mine tailings facilities in real-time, and the cloud-based Insight Platform – the technology that underpins the solution, resulting from Inmarsat's two year collaboration with Civic Connect. To drive its aggressive growth strategy, Insight Terra has secured US\$5.45 million in Series A funding, led by Atlantic Bridge, with additional participation from Globalive and JLR Star. Civic Connect will be the majority owner of Insight Terra initially, while Inmarsat will retain an equity stake in Insight Terra and a seat on the new company's board of directors.

### **U.S. Navy Awards L3harris Contract For 16 Comsatcom Terminals**

August 4, 2021 - The U.S. Navy has awarded L3Harris \$18 million as part of the Commercial Broadband Satellite Program (CBSP), a continuing effort to bolster sailors' access to commercial broadband communications while on active maritime duty. The company's long-standing commitment to the program

and on-time delivery of the systems led to four additional units being added to this year's contracted activities. CBSP provides terminal-to-shore, space and terrestrial connectivity, increasing throughput for commercial satellite communications to provide redundancy for military satellite communications. The program includes two U.S. Navy contracts for separate types of terminals, one for Force-Level Variants (FLV) and another for Unit-Level Variants (ULV). The ULV contract is a 10-year indefinite delivery, indefinite quantity award, through which the Navy has deployed more than 150 systems to date. This year's award will provide the service with 16 new units; work is expected to be completed later this year.

### **SES Networks Expands Partnership with Orange to Enhance Maritime Services**

August 3, 2021 - Orange maritime customers will now be able to accelerate their digital transformation with higher-capacity satellite connectivity services provided jointly by SES Networks and Orange. With this innovative agreement, Orange will integrate its own global infrastructure with the global network coverage powered by SES Networks' Skala Global Platform. Together it will enable Orange maritime customers to cost-effectively scale up their bandwidth with seamless, ubiquitous and global services. This will ensure they can implement new technologies onboard that take advantage of IoT and AI, as well as edge and cloud applications. The combination of the Orange secured and digital network infrastructure and SES Networks' Skala Global Platform – a next-generation technology platform which provides worldwide coverage via multiple geostationary satellites and gateways interconnected by a global terrestrial network – will deliver reliable, high-performance broadband services everywhere, from developed markets to the hardest-to-reach places on Earth. This latest agreement further strengthens the partnership that the Orange Group and SES Networks have established in the last few years. Orange has leveraged SES' innovative O3b satellite constellation operating in medium earth orbit (MEO) as well as SES' geostationary satellites to deliver global fibre-like, low-latency services to their mining customers. Orange has also been using SES's MEO and GEO services to provide international connectivity where needed and to deploy cellular services across remote areas of Africa. Orange is also the first announced network operator to adopt O3b mPOWER, SES's next-generation MEO system, which is planned for commercial service availability in the second half of 2022.

### **Gilat's Global Mobility Platform Selected by SES in Multi-Million Dollar Order**

August 3, 2021 - Gilat Satellite Networks Ltd. has been awarded a multi-million-dollar order by SES for its global mobility platform. This agreement solidifies Gilat's maritime leadership with initial services to top cruise lines and maritime service providers who will be able to access satellite-enabled services delivered by SES's O3b mPOWER and geostationary fleet through Gilat's multi-orbit platform. Gilat's next-generation platform is optimized to provide the required multi-orbit, multi-band service to address the high throughput needs of ships, planes and land mobility terminals anywhere on earth. This network expansion will position Gilat's VSAT platform at over a dozen gateways to form a resilient multi-orbit and secure global network and enable superb passenger wi-fi experience. Gilat's Aquarius Pro VSATs will provide multi-gigabyte services with maximum efficiency, utilizing O3B mPOWER constellation and other SES GEO satellite assets including SES-17.

### **ThinKom Solutions and Telesat Sign Agreement to Integrate Ka-Band Antennas on Telesat Lightspeed Satellite Network**

August 3, 2021 - ThinKom Solutions and Telesat announced a teaming agreement to collaborate on integrating ThinKom's Ka2517 aeronautical antennas with the advanced Telesat Lightspeed™ LEO satellite broadband network. The two companies will work together to facilitate operations of the Ka2517 antennas on the fully integrated 298 satellite and ground network, which is expected to begin services in 2023. The efforts under the agreement will include integration of the Ka2517 as a complete aeronautical User Terminal solution, followed by formal type approval of the Ka2517 on the Telesat Lightspeed network. Based on the high performance and efficiency of the Ka2517 antennas and Telesat's advanced LEO satellite network, downlink speeds are expected to reach up to 830 Mbps and uplink speeds up to 200 Mbps to a single aircraft. Ka2517 antennas have already been successfully tested on Telesat's Phase 1 LEO satellite, validating tracking of the LEO satellite, extremely high spectral efficiencies, and ultra-low latency of 20-40 msec. Additional testing will be conducted to validate both intra- and inter-satellite handovers on the Ka2517 terminal when the Telesat Lightspeed satellites are in orbit.

### **Comtech Awarded Order for Full-motion Tracking Systems from Commercial Space Entity**

August 3, 2021 - Comtech Telecommunications Corp., a global leading provider of next-generation 911 emergency systems and secure wireless communications technologies, announced today, that during its fourth quarter of fiscal year 2021, it was awarded a US\$2.1 million follow-on contract from a commercial

space company for several full-motion large aperture antenna tracking systems. The contract was awarded to Comtech's Space & Component Technology (SCT) division, which specializes in ground station systems and life cycle management, as well as the supply of high reliability microelectronics (EEE parts) for use in satellite, launch vehicle and manned space applications. Satellite tracking antennas are manufactured from 30cm to 13m, as well as RF feeds, radomes and carbon fiber reflectors, for LEO, MEO and GEO orbits, for customers worldwide, for all frequency bands. This encompasses all aspects of use including requirements definition and analysis, design, development, and integration of turnkey systems from antenna to data processing, civil works and construction, software, station installation and verification, operations and maintenance, and decommissioning at end of life.

### **HISPASAT Launches Pilot Project with Correos to Provide Satellite Connectivity to offices**

August 3, 2021 - HISPASAT, Grupo Red Eléctrica's communications satellite operator, has begun a pilot project with Correos to give satellite connectivity to certain offices located in places where Internet access is problematic. The pilot will initially be run in six locations – three in Zamora (Santa Cristina de la Polvorosa, Fermoselle and Coreses), two in Teruel (Valdealgolfa and Mosqueruela) and one in Soria (Duruelo de la Sierra) – and may be rolled out to the company's other rural service points that have connectivity issues. Thanks to satellite connectivity, the offices in question will be able to join Correos' computer network and, by doing so, improve their efficiency and agility and increase their service offering. On the one hand, all receipts and deliveries of correspondence and packages will be registered in a system that makes it easier to identify and track shipments. On the other hand, being connected to the branch network will boost 'real time' operations such as instant money transfers, sending money abroad, paying energy company bills, topping up prepaid cards, DGT operations (General Directorate of Traffic) and withdrawals from and deposits into Banco Santander accounts.

### **Colt Connects to over 200 Cloud On-ramps Globally**

August 3, 2021 - Colt Technology Services, a leading provider of agile, high bandwidth connectivity solutions, has today announced that it is now interconnected at over 200 public Cloud on-ramp locations globally, covering the vast majority of the major public cloud points of presence (PoPs) market in Europe and Asia. Colt continues expanding its Cloud on-ramps, connecting to Oracle Cloud, Amazon Web Services, Google Cloud, IBM Cloud and Microsoft's Azure Cloud. The most recent addition of a new interconnect to the Oracle Cloud in Newport, Wales, means Colt is more connected to the Cloud than most of the global providers in Europe and Asia. Exceeding 200 on-ramps makes Colt a leading cloud incumbent in Europe and Asia. It means the connectivity provider can bring enterprise sites even closer to the cloud for the lowest latency possible. Colt's extensive coverage of cloud PoPs also allows it to offer customers significant cloud PoP diversity options and fully resilient connectivity in one country or cloud region. Cloud migration is a key driver defining enterprise IT strategies, and the last 12 months have seen a surge in cloud migration, driven by COVID-19. New research from Colt found that enterprises are engaging with a new era of cloud possibilities and embracing a whole new generation of cloud-centric compute and connectivity. Technology evolution as a key enabler of enterprise digital transformation plans.

### **Speedcast Secures Multi-Year Contract Extension with Hornbeck Offshore**

August 3, 2021 - Speedcast has been selected by Hornbeck Offshore to extend its IT communications equipment and connectivity services contract for a multi-year term to a total of 32 vessels serving the offshore energy industry across North and South America. Hornbeck Offshore Services, Inc. is a leading provider of offshore service vessels to the energy industry. Speedcast leverages very small aperture terminal (VSAT) connectivity to deliver communications to the remote offshore assets, supported by Speedcast's 24x7 global Customer Support Centers (CSC), with field engineers available to provide local support across all operating regions.

### **GTMaritime Product Upgrades Strengthen Cyber Resilience and Smart Data Management**

August 2, 2021 - GTMaritime, a leading provider of secure data communications software to the shipping industry, has released two significant product updates addressing fast-evolving cyber security and digitalisation needs in shipping. Available for download now, GTMaritime's secure maritime file and data replication solution, GTReplicate, has been substantially upgraded to provide customers with greater file synchronisation capabilities across satellite networks. Delivered over FastNet, GTMaritime's independent and secure data platform, GTReplicate v1.2 automatically configures, monitors and securely executes fleet wide file transfer tasks from a central location. FastNet optimises data streams between ship and shore by removing the need for crew intervention and reducing the number of vessel connections needed, greatly improving cyber security. In addition, GTMaritime has released GTSentinel 8, the latest version of its

comprehensive maritime antivirus software. GTSentinel capabilities continue to develop, based on advancing GTMaritime expertise and ESET's award-winning protection and multi-layered internet security to deliver powerful antivirus cover for ships and shipping.

### **Iridium Granted Trio of Regulatory Approvals in Japan**

August 2, 2021 - Iridium Communications Inc. today announced that Japan's Ministry of Internal Affairs and Communications (MIC) has approved regulatory amendments necessary to allow for Japanese adoption of Iridium Certus® broadband, Iridium Controller-Pilot Data Link Communications (CPDLC) and other aeronautical services for aviation and Iridium's Global Maritime Distress and Safety System service (GMDSS). Over the past several years, Iridium has been working on regulatory amendments with the MIC to incorporate these services into the Japanese regulatory framework, while many other Iridium services have long been approved. Following all required processes of the regulatory amendments, Japanese flagged aircraft, ships and other customers can begin use of these Iridium services. The Iridium Certus service for maritime and land mobile industries began in January 2019, however it was previously unavailable in Japan due to ongoing regulatory amendments. The MIC published the amendments in the government Gazette in late 2020, and Iridium partners may now obtain equipment certifications for their Iridium Connected® products.

## **BROADCAST**

### **SES Launches New HD+ ToGo Streaming App in Germany**

August 31, 2021 - SES's German HD media platform subscribers will now be able to access their favourite channels on their mobile devices with the launch of a new streaming app, HD+ ToGo. As an extension of SES's premium high-definition (HD) satellite television HD+ service, the new mobile service will give users full streaming access to over 50 HD channels in the palm of their hands, and will be available on 29 September, SES announced. For a seamless customer experience, HD+ ToGo will mirror the popular functions of the linear TV platform, such as access to media libraries and restart service. HD+ ToGo also includes a smart search function for content, which allows users to refine search results with filters, place the content found on a watch list and set automatic reminders. The new streaming service will be available first to HD+ subscribers as an additional option. HD+ subscribers will be able to enjoy the service risk-free with a 30-day free trial; after that, they will pay EUR 5 per month in addition to their basic subscription price and can terminate their subscriptions monthly. HD+ ToGo will allow HD+ subscribers to stream up to five devices with possibility of two viewers streaming simultaneously.

### **Express-AM8 Now Working for Brazil's Television**

August 26, 2021 - Having signed a contract with one of the largest national television companies, RSCC has entered Brazil's television market. More than three million viewers in the state of Maranhao now watch the Brazilian TV channel TV Difusora using the Express-AM8 satellite. The Russian Satellite Communications Company (RSCC) and service provider Romantis Brazil have started broadcasting the TV Difusora channel in the state of Maranhao in northeastern Brazil. In the urban and rural areas of the state with a population of over three million, television broadcasting is delivered via the Express-AM8 satellite, which is located at 14 ° W, the westernmost orbital position of the RSCC constellation. A state-of-the-art monitoring center, built by Romantis and RSCC specialists in the city of Uberlandia, is used to ensure reliable broadcasting in remote and hard-to-reach areas of Maranhão.

### **ATEME Transforms Telecom Armenia's Operations with Complete OTT Video-Delivery Solution**

August 2, 2021 - ATEME, the leader in video delivery solutions for broadcast, cable TV, DHT, IPT and OTT, today announces that Telecom Armenia, an IPTV/OTT operator running under the Beeline brand, has selected its integrated OTT video-delivery solution to enable a re-launch of its TV offering to the Armenian market. With a legacy system in place, Telecom Armenia identified a need for a scalable and effective video-delivery solution as part of a planned service refresh that included a new front and back office. The operator selected ATEME as a single source supplier, enabling the organization to benefit from a range of OTT technologies, from reception to CDN. ATEME's end-to-end offering gives service providers a single platform to leverage transport streams over both IPTV and OTT networks, leading to optimized processes and better performance. Because of its shared workflow approach, it also enables organizations to centralize all media processing workflows and ensure high-quality delivery of any content to any screen. The chosen system also includes TITAN for compression, channel origination and reception, and NEA for packaging, VOD, catchup and CDN delivery.

### **Israel Space Agency Selects Ramon.Space for Computing Payload**

August 31, 2021 - Ramon.Space has been selected by the Israel Space Agency to provide a space computing payload for a mission scheduled to launch in early 2022. As part of the mission, Ramon.Space digital payload will perform computing on-orbit including software updates and upgrades using the company's programmable space computing systems. Ramon.Space high performance computing systems are based on in-house manycore Rad[1]Hard DSP space processor IC's complete with machine learning, storage and a virtual radiation shield designed to operate reliably in the harsh space environment. Ramon.Space systems serve as the computing infrastructure for next generation space applications such as communication, remote sensing, and data networking. The company's proven technology enables full software defined communication systems including software[1]defined radio, channelizers, inter satellite links, routing in space and digital beamforming to maximum bandwidth utilization and increase flexibility and scalability for communication satellite payloads. Ramon.Space's high performance, power efficient, SW-defined systems are paving the way for smart, autonomous satellites for LEO, MEO and GEO missions, boosting their in orbit capabilities.

### **Space BD Strengthening Relationship with the Australian Space Industry to Promote the Industry in Australia**

August 30, 2021 - Space BD announces the launch of two Australian satellites through Space BD's small satellite deployment service on August 29, 2021 at 3:14 a.m. (EDT). Space BD has been appointed by Japan Aerospace Exploration Agency (JAXA) as the private partner for the small satellite deployment service from the International Space Station (ISS) Japanese Experiment Module Kibo since 2018. And it has led to the commercialization of Japanese space assets as a private sector. This was the first satellite launch for the State of Western Australia, the first satellite launch for of the Australian Research Council Training Centre for CubeSats, Uncrewed Aerial Vehicles and their Applications (CUAVA), and the first overseas satellite launch for Space BD. Space BD provided one-stop support for the technical coordination, safety reviews, and governmental applications related to this launch. Space BD aims to strengthen its collaboration with the Australian space agency and local industry to promote space in the country through satellite launches and the space-based solution business. Beyond that, Space BD also plans to expand its business model to early-stage countries in the space industry, especially in the Indo-Pacific region.

### **Rogue Space and Firefly Aerospace Sign Launch Service Agreement**

August 30, 2021 - Rogue Space Systems Corporation and Firefly Aerospace have signed a Launch Service Agreement (LSA). The agreement confirms that Rogue has secured the entire payload mass capacity aboard a Firefly Alpha rocket, scheduled for liftoff from Cape Canaveral in the fall of 2023. In addition to being the anchor customer, Rogue Space will sign, manage, integrate, and deploy multiple customer payloads on the flight with their Fred OTV (Orbital Transport Vehicle) spacecraft. The agreement enables Rogue Space to offer their customers a cost-effective transport program for both dedicated and rideshare missions that require drop-offs at varying altitudes and inclinations in LEO and beyond. This first agreement with Firefly sets the foundation for several programs Rogue plans to announce in the coming weeks and months ahead. The intention is to build additional launch capacity with Firefly and other launch providers with the goal of setting a cadence of launches targeting small satellite operators that wish to leverage the value-added capabilities of Rogue's various Orbital Robots (Orbots™) programs. Rogue is looking to begin seeding its Orbot services constellation into LEO (Low Earth Orbit) beginning in 2022.

### **New Shepard Successfully Completes Mission with Commercial and NASA-supported Payloads on Board**

August 27, 2021 - Blue Origin successfully completed the 17th New Shepard mission to space and back for the program, and the 8th consecutive flight for this particular vehicle. Today's flight featured payloads supported by NASA's Flight Opportunities program and included a second flight of the Deorbit, Descent, and Landing (DDL) Sensor Demonstration under a NASA Tipping Point partnership. The DDL demonstration, which flew for the second time mounted on the exterior of New Shepard's booster, tested technology designed to achieve high-accuracy landing for future Moon missions. This aims to enable long-term lunar exploration. Other payload highlights included a second flight of the OSCAR Trash-to-Gas payload, which evaluated a system that helps process trash samples into useful gases; the University of Florida's third flight of the 'Biological Imaging in Support of Suborbital Science' experiment, which further tested the calibration of data collection for biological experiments; and Suborbital Triptych, a work of art

by Ghanaian artist Amoako Bofo painted on three exterior panels on the crew capsule.

### **Astroscale's ELSA-d Successfully Demonstrates Repeated Magnetic Capture**

August 26, 2021 - Astroscale's End-of-Life Services by Astroscale-demonstration (ELSA-d) successfully tested its ability to capture its client spacecraft using the servicer's magnetic capture system, in a demonstration performed on Wednesday, August 25 (UTC). A major challenge of debris removal, and on-orbit servicing in general, is docking with or capturing a client object; this test demonstration served as a successful validation of ELSA-d's ability to dock with a client, such as a defunct satellite. When ELSA-d was launched and commissioned, a mechanical locking mechanism held its servicer and client spacecraft together. The first step of this demonstration was to unlock this mechanism. Once unlocked, the magnetic capture system alone held the client to the servicer, preparing ELSA-d to repeatedly capture and release the client in future demonstrations. The client was then separated from the servicer for the first time and captured to validate the magnetic capture system. During the release and capture period, Astroscale's Mission Operations and Ground Segment teams checked out and calibrated the rendezvous sensors and verified relevant ground system infrastructure and operational procedures. The successful completion of this phase paves the way for the remainder of Astroscale's pioneering demonstrations of space debris removal.

### **SITAEEL Australia Teams up with University of Adelaide to Develop Next generation Earth Observation**

August 26, 2021 - SITAEEL Australia has today announced a new partnership with the University of Adelaide's Institute for Photonics and Advanced Sensing (IPAS) to cooperate in innovative research into space-based infrared instruments. SITAEEL Australia and IPAS will cooperate on utilising multi-aperture infrared sensors with intelligent processing to achieve low cost, high resolution thermal imagery. The partnership has been conceived as part of the SmartSat Cooperative Research Centre (SmartSat CRC), that sees SITAEEL Australia and the University of Adelaide amongst the members developing know-how and technologies for intelligent satellite systems and Earth observation data services. The project, which has a one-and-a-half year timescale, will help grow Australia's sovereign space-based infrared imaging capability, and has applications across defence and surveillance, water monitoring, fire monitoring and agriculture.

### **Thales Alenia Space and the EU Agency for Space Programme (EUSPA) Sign a First EGNOS Contract**

August 25, 2021 - Thales Alenia Space announced that it has signed its first contract with the EU Agency for Space Programme (EUSPA), to provide new capabilities to Europe's EGNOS satellite navigation system. With this contract, Thales Alenia Space will start the development for Europe of a new EGNOS version introducing a new generation uplink station (NLES, Navigation Land Earth Station) allowing the introduction of new GEO satellites in the system for improved redundancy. This new generation of station would be also compatible with the future emission of Dual Frequency & Multi-Constellation messages (i.e. future introduction of dual frequency algorithms and usage of the Galileo and GPS constellations).

### **Maxar Awarded Contract to Build SXM-10 Satellite for SiriusXM**

August 24, 2021 - Maxar Technologies has received an order to build another geostationary communications satellite for longtime customer SiriusXM, following the SXM-9 satellite order that was announced earlier this month. SXM-10, a high-powered digital audio radio satellite, will be built on Maxar's proven 1300-class platform at the company's manufacturing facility in Palo Alto, California. Maxar has been building satellites for SiriusXM for more than two decades, including the first-generation Sirius satellites launched in 2000, the second-generation Sirius satellites launched in 2009 and 2013, and the company's third-generation satellites, the last one of which was launched earlier this year.

### **Gilmour Space and Exolaunch Collaborate on Launch and In-Space Transportation**

August 24, 2021 - Gilmour Space Technologies, a premier Australian rocket company pioneering new and innovative hybrid propulsion technologies for launching small satellites, and Exolaunch, a Berlin-based leader in rideshare launch and deployment services for small satellites, today announced a series of agreements for small satellite launch, deployment and in-space transportation services. The companies join forces to provide tailored launch, precise deployment and in-space transportation services to the small satellite operators using Eris, a hybrid launch vehicle, developed by Gilmour. Under the agreements, Gilmour partners with Exolaunch, a trusted and experienced rideshare specialist with a solid flight heritage, and gains access to Exolaunch's flight-proven cutting-edge small satellite deployment technologies and in-space transportation services via Exolaunch's Reliant orbital transfer vehicle to expand the capabilities of Eris in low Earth orbit and beyond. Partnering with Gilmour, Exolaunch gains



access to low-inclination missions and unique orbits via Gilmour's innovative Eris launch vehicles lifting-off from Australian soil and will begin manifesting customers' satellites on the upcoming launches of Eris.

### **NorthStar Earth & Space Secures Radio Frequency Spectrum License Approval for Planned Satellite Constellation**

August 24, 2021 - NorthStar Earth & Space has received approval in principle from Innovation, Science and Economic Development Canada (ISED) authorizing NorthStar to use all of the company's requested radio frequency spectrum allocation for its planned 52-satellite constellation that will deliver a suite of information services related to Earth and space sustainability. Specifically, ISED has authorized use for all NorthStar requested Ka-band and X-band radio-frequency ranges, ensuring that NorthStar will have the bandwidth required to deliver millions of images per day of highly detailed, information-rich imagery from multiple sensor types. The ISED approval in principle confirms NorthStar's Canadian spectrum application is in full compliance with the Radio Regulations of the International Telecommunication Union (ITU), an agency of the United Nations. The full NorthStar 52-satellite constellation will be deployed in two segments. The initial 12-satellite constellation, named "Skylark", is designed with optical sensors directed to near-Earth space and will deliver services to enhance Space Situational Awareness (SSA) and the safety of the space environment. NorthStar will launch a further forty satellites to enhance Skylark with additional optical sensors, while deploying a combination of hyperspectral and infrared (IR) sensors to provide unique and valuable Earth observation capabilities.

### **Commercial Rocket Launch Permit Granted for South Australia**

August 23, 2021 - The Morrison Government has given regulatory approval for a commercial rocket launch to take place later this year from a newly licensed launch facility in South Australia. Taiwanese company tiSPACE will conduct a test flight of its Hapith I – a 10m, two-stage, sub-orbital rocket – from the Whalers Way Orbital Launch Complex, which is operated by Southern Launch. Minister for Industry, Science and Technology Christian Porter said approval of the launch permit is an exciting moment that adds to the growing momentum in Australia's space sector and will help position Australia as a future launch destination. The date for the launch will be determined by tiSPACE and Southern Launch in the coming months. tiSPACE is also currently considering bringing manufacturing of complete rocket systems to Australia.

### **OneWeb Confirms Another Successful Launch, Accelerating Business Momentum**

August 22, 2021 - OneWeb confirmed the next successful launch of 34 satellites by Arianespace from the Baikonur Cosmodrome. The launch follows the successful completion of OneWeb's 'Five to 50' mission and highlights the momentum of the business as it prepares to both introduce commercial service and focus on scaling to global service. This latest successful launch brings OneWeb's total in-orbit constellation to 288 satellites. These will form part of OneWeb's 648 LEO satellite fleet that will deliver high-speed, low-latency global connectivity. Lift-off occurred on 21 August at 23:13 BST. OneWeb's satellites separated from the rocket and were dispensed in nine batches over a period of three hours 45 minutes with signal acquisition on all 34 satellites confirmed. OneWeb remains on track to deliver global service in 2022 and is seeing growing demand from telecommunications providers, ISPs, and governments worldwide to offer its low-latency, high-speed connectivity services to the hardest to reach places. Since the start of 2021, OneWeb has announced distribution partnerships across several industries and businesses including most recently with Northwestel in Canada and BT in the UK. The business is growing from a position of strength, establishing itself as a leader in LEO broadband connectivity, and recently announced \$300 million in further funding from Hanwha. OneWeb is fully funded to deliver its constellation and take its satellites into commercial service.

### **SES Unveils Second-Generation NGSO Constellation at Boeing's El Segundo Facility**

August 18, 2021 – SES unveiled its O3b mPOWER constellation of 11 satellites together with its manufacturing partner, Boeing. SES's next-generation non-geostationary satellite orbit (NGSO) constellation, operating in medium Earth orbit (MEO), is capable of delivering multi-gigabit connectivity services to a variety of industries globally, including telecommunications, maritime and aviation, as well as governments and international institutions. The satellites are currently going through testing and system integration at Boeing's satellite facilities in El Segundo in preparation for launch in December. O3b mPOWER is the second-generation of SES's O3b MEO system, making it the only NGSO system based on a field-tested model of technical and commercial success. The software-driven O3b mPOWER communications system is capable of delivering intelligence-driven connectivity services from tens of megabits to multiple gigabits per second, enabling customers to optimise their global bandwidth

availability and resiliency. SES also just announced that Microsoft has signed as the latest O3b mPOWER customer. Microsoft will use the MEO services for additional network diversity, service resiliency and gigabit connectivity as more critical workloads move to the cloud. Other publicly-announced O3b mPOWER customers include Carnival Cruises, Orange and iSat Africa.

### **19th Vega Mission Demonstrates Arianespace's Ability to Deliver for the Most Innovative Projects for the Benefits of its Clients**

August 17, 2021 - On Monday, August 16, 2021 at 10:47 pm local time (01:47 am (UTC) on Thursday, August 17), a Vega launch vehicle operated by Arianespace lifted off successfully from Europe's Spaceport in French Guiana (South America). This mission marked Arianespace's 7th successful launch of the year and the second with Vega in 2021. It lasted one hour, 44 minutes and 59 seconds during which Pléiades Neo 4 separated on a sun-synchronous orbit at an altitude of 625 km while the four auxiliary payloads separated at 551 kilometers. Today's mission's primary purpose was orbiting Pléiades Neo 4, the second of the four satellites of the Pléiades Neo constellation, the first being launched with Vega on April 28, 2021. With 30cm-native-resolution, best-in-class geolocation accuracy and twice-a-day revisit capability, the four Pléiades Neo satellites unlock new possibilities with the ultimate in reactivity. The satellite was fully funded and manufactured by its operator Airbus. Pléiades Neo 4 was the 133rd Airbus Defence and Space satellite to be launched by Arianespace. There are currently 18 Airbus satellites in Arianespace's backlog 11 of which will be launched with Vega and Vega C launchers. The last two satellites of the Pléiades Neo constellation will be placed into orbit in 2022 thanks to the next generation launch vehicle, Vega C. The 19th mission of Europe's Vega light launcher also injected four CubeSats on a sun-synchronous orbit, three for the European Space Agency (ESA) and one for the French start-up Unseenlabs.

### **The Translation of the Express-AM33 Satellite from the Orbital Position of 96.5° E to the 11° W Slot**

August 17, 2021 - Specialists of the Ops Dept of the Russian Satellite Communications Company (RSCC) orbital constellation have completed the translation of the Express-AM33 satellite from the orbital position of 96.5° E to the 11° W slot. To translate the Express-AM33 to the required position, the satellite had made 120 orbits around the Earth at an altitude of 35,880 km, covering 31.7 million km in the process. The most difficult and precise work was performed by 41 employees of the RSCC Mission Control Centers located in Moscow, Zheleznogorsk, and Dubna Space Communication Centers and the Vladimir Satellite Communication Station. For four months, specialists provided round-the-clock control of the satellite, updating its trajectory as needed. From August 17, 2021 the Express-AM33 has been ready for operation. Now, in most of the Atlantic Ocean, the crews and passengers of sea-going ships have obtained access to the Internet and communication services, provided even in the most extreme conditions.

### **Ovzon Reschedules the Launch of the Ovzon 3 Satellite to Q2 2022**

August 17, 2021 - Ovzon announcing a rescheduling of the Ovzon 3 satellite launch to the second quarter of 2022. The rescheduling is due to insufficiencies in key components affecting the completion of satellites in the industry. Ovzon 3 has been in production at Maxar in the US since the project was initiated on August 9, 2019, and was planned to launch with Arianespace by the end of 2021. Maxar has informed Ovzon they are unable to deliver on the original timeline due to delays from subcontractor Honeywell and will therefore not be able to meet previously agreed date for delivery to Ovzon. Maxar and Honeywell are working hard and have developed new procedures to minimize these delays. Ovzon has managed to secure a new launch slot in Q2, 2022 and expect Ovzon 3 to be operational during the fourth quarter of 2022. Ovzon's customers have been informed of the rescheduling and continue to be excited about utilizing Ovzon 3 and its best-in-class performance when the satellite has reached its targeted orbital position. This rescheduling will not affect Ovzon's current business and deliveries to current and new customers as the company has already strategically secured leased satellite capacity for Ovzon's expanding SATCOM-as-a-Service offering.

### **Arianespace Supports OneWeb's Rollout by Bringing its Fleet of Satellites to Nearly 300**

August 12, 2021 - Flight ST34, the first commercial mission performed by Arianespace and its Starsem affiliate from the Baikonur Cosmodrome in 2021, after four successful launches from Vostochny earlier this year, will put 34 of OneWeb's satellites into a near-polar orbit at an altitude of 450 kilometers. The mission will have a total duration of three hours and 45 minutes and will include a first separation of two satellites followed by eight separations of four satellites, which will raise themselves to their operational orbit. This ninth launch to the benefit of OneWeb will raise to 288 the number of satellites deployed for the global telecommunications operator. This launch represents a straight continuation of the ambition carried and achieved by the previous one. On July 1st, ST33 placed into orbit enough satellites to enable

connectivity services to the 50th parallel and above by years end which includes Canada, UK, Northern Europe, Alaska and Arctic regions. OneWeb's launch campaign will continue thereafter as it works toward delivering global service in 2022.

### **Lúnasa Space Partners with Skyrora to Offer Flexible Ridesharing and Last-mile Delivery Service**

August 17, 2021 - Lúnasa Space announced the signing of a Memorandum of Understanding with Skyrora, a launch provider for small satellites. Both companies' visions are geared towards the same overall goal, which is to offer easier and cost-effective access to space to small satellite operators. This agreement reflects a mutual desire to closely collaborate to facilitate the launch of small satellites into their final operational orbit. Lúnasa Space will provide the necessary support to Skyrora to make this collaboration a success. This partnership is the opportunity to bring together our common interests to strengthen each company's activities to benefit the UK small satellite industry. The government's vision is for the UK to be at the global forefront of small satellite launch and emerging space transportation markets, maximising the value of the spaceports and launch from the UK, making the UK home for low-cost launch services and developing platform technologies to promote even lower-cost access to space.

### **NorthStar and JSI to Promote Commercial Space Situational Awareness Services to Japan**

August 12, 2021 - NorthStar Earth & Space of Montreal, Canada, has entered into an agreement with Japan Space Imaging Corporation (JSI) to tailor product offerings for Japanese customers based on NorthStar's space-based precision Space Situational Awareness (SSA) services. The agreement designates JSI act as Authorized Marketing Representative for NorthStar's suite of services with the government of Japan and with Japanese commercial entities. JSI and NorthStar will promote valuable space information and intelligence services to Japanese government and commercial customers to safely navigate in an ever contested and congested space environment. Together, the two companies desire to greatly enhance current capabilities to ensure safe access to and operations in space and notably to protect the global satellite community from collisions. Commercial space is forecast to grow into a \$2.7 trillion industry. New satellites and planned mega-constellations are launching into an environment ever more congested with traffic and space debris. Increased risks must be mitigated with precision information that fuel better Space Situational Awareness (SSA) services. The combination of NorthStar's Space Information and Intelligence services (Si2) and JSI's established expertise will ensure Japanese commercial and government customers have access to NorthStar services to ensure safe access to space.

### **Rocket Lab Inks Deal with Varda Space Industries to Supply Multiple Photon Spacecraft for Space Manufacturing Missions**

August 11, 2021 - Rocket Lab has signed a deal with in-space manufacturing company Varda Space Industries to produce three Photon spacecraft that will integrate with their space factories, enabling high-value products to be manufactured in zero-gravity and returned to Earth in Varda's re-entry capsule. Varda's space-manufactured products are targeted at high-value markets such as fiber optic cables, pharmaceuticals, and semiconductors - all of which have higher performance when produced in zero-gravity. After launch, Rocket Lab's Photon will position the spacecraft in an operational orbit and provide station keeping. Photon will support Varda's 120 kg manufacturing and re-entry modules with power, data, and attitude control. All three Photon spacecraft will also incorporate Rocket Lab-designed and built spacecraft components, including radios, reaction wheels and star trackers. Rocket Lab's Photon will perform multiple burns with the 3D-printed Curie engine, acting as a highly capable propulsion system to place Varda's re-entry capsule on a return trajectory to Earth. The first Varda Photon is planned for delivery in Q1 2023, with the second to follow up later in the year and a third in 2024. The contract, which is subject to standard termination provisions, also includes an option for Varda to procure a fourth Photon. Each mission has a nominal three-month duration from launch to landing.

### **US Space Force Awards Orbital Services Program (OSP)-4 Contract to Emerging Small Launch Providers**

August 10, 2021 - The US Space Force's Rocket Systems Launch Program Office, a part of the Space and Missile Systems Center's Launch Enterprise at Kirtland Air Force Base, Albuquerque, New Mexico, announced the award of the first on ramp of the Orbital Services Program (OSP)-4 Indefinite Delivery/Indefinite Quantity (IDIQ) contract to ABL Space Systems Corp, Astra Space, Inc., and Relativity Space, Inc. OSP-4 allows for the rapid acquisition of launch services to meet mission requirements for payloads greater than 400 pounds, enabling launch to any orbit within 12-24 months from task order award. The RSLP will compete each mission among the IDIQ awardees. The addition of these emerging providers' preserves, stimulates, and enhances the small launch industrial base and yields the Space Force

a diverse vendor pool in support of the nation's defense. The SMC Launch Enterprise initially awarded the OSP-4 contract in October 2019, to Aevum, Firefly Black, Northrop Grumman Innovation Systems, Rocket Lab USA, Space Exploration Technologies Corp., United Launch Alliance, VOX Space, and X-Bow Launch Systems. This on ramp will add additional emerging launch providers to the group eligible to compete for future USSF OSP-4 Task Order awards.

#### **Space Flight Laboratory Awarded NOSA Contract for NorSat-4 Maritime Tracking Microsatellite**

August 9, 2021 - The Norwegian Space Agency (NOSA) has awarded a contract to Space Flight Laboratory (SFL) to build the NorSat-4 maritime tracking microsatellite. NorSat-4 will be the eighth satellite developed by SFL for Norway, including NorSat-3 launched in April 2021 and the NorSat Technology Demonstrator (NorSat-TD) now under construction. Similar to NorSat-1, -2 and -3, NorSat-4 will be built on SFL's DEFIANT microsatellite platform (a variant of the NEMO platform that uses a separation system and not a dispenser) and carry an Automatic Identification System (AIS) ship tracking receiver developed by Kongsberg Seatex. An important new addition on NorSat-4 will be a low-light imaging camera. To develop the miniature low-light imaging camera, the Norwegian Defence Research Establishment (FFI) has contracted Safran Reosc of France. This powerful device will detect vessels larger than 30 meters in length in Arctic waters, which are shrouded by darkness much of the year.

#### **Planet Signs Multi-Year, Multi-Launch Rideshare Agreement with SpaceX**

August 5, 2021 - Planet announced a multi-year, multi-launch agreement solidifying SpaceX as its go-to-launch provider through the end of 2025. The first planned launch under this agreement is Flock 4x, 44 SuperDoves on the Falcon 9 Transporter-3 SSO rideshare mission scheduled for launch December 2021. This multi-year launch agreement enables Planet to efficiently launch much of its emerging satellite projects including future SuperDoves and Carbon Mapper. The company is accelerating its work at whirlwind speeds to deliver never-before-seen insights in earth observation in high resolution and with hyperspectral imaging. Building this collaborative agreement with SpaceX marks an important step for agile aerospace in the New Space industry. To date, Planet has launched 83 satellites with SpaceX over the course of seven launches. The most recent of which include the launches of SkySats 16-18 and 19-21 aboard Starlink missions, and the launch of Flock 4s, 48 SuperDoves, on the record-breaking Transporter-1 SSO rideshare launch.

#### **Momentus Announces 2022 Launch Services Agreement with Danish Students CubeSat Program**

August 5, 2021 - Momentus Inc. announced a launch services agreement with the Danish Students CubeSat Program (DISCO). The launch services agreement was formally signed earlier this year and is focused on a mid-2022 launch and delivery of a 1U CubeSat to its low-Earth orbit destination aboard a Momentus Vigoride service vehicle. The DISCO satellite will host a series of student experiments from across a consortium of four Danish universities and serve as a communication station for radio amateurs around the world. One of the DISCO team's goals is to learn to use S-band frequencies for communications with the 1U satellite. This could allow subsequent DISCO satellites to send much more significant amounts of data down to Earth.

#### **Maxar Awarded Contract to Build New Satellite for SiriusXM**

August 4, 2021 - Maxar Technologies announced the company will manufacture a new geostationary communications satellite for longtime customer SiriusXM. The SXM-9 satellite will be based on Maxar's proven 1300-class platform and built at the company's manufacturing facility in Palo Alto, California. It is expected that SXM-9 will launch in 2024. Maxar has been building satellites for SiriusXM since 2000, which includes the first-generation Sirius satellites launched in 2000 and the second-generation Sirius satellites launched in 2009 and 2013. Most recently, SXM-8 launched from Cape Canaveral, Florida on June 6, 2021, and completed in-orbit testing in July 2021.

#### **Maxar Extends its EnhancedView Follow-On Contract with U.S. National Reconnaissance Office**

August 4, 2021 - Maxar Technologies announced the U.S. National Reconnaissance Office (NRO) has exercised the second of three, one-year options on the company's existing EnhancedView Follow-On (EVFO) Service Level Agreement. In 2018, NRO added three option years to Maxar's EVFO agreement under the same terms and value of \$300 million per year to provide continuity of service potentially through August 2023. This second contract option year has a period of performance from September 1, 2021, through August 31, 2022. The requirements and funding for this effort will be transferred to NRO's Electro-Optical Commercial Layer program.

### **Successful Launch of EUTELSAT QUANTUM, the First Full Software-defined Satellite**

August 2, 2021 - The EUTELSAT QUANTUM satellite was successfully launched into Geostationary Transfer Orbit by Arianespace using an Ariane 5 rocket that lifted off from the Guiana Space Center in Kourou, French Guiana, at 9 pm Universal Time (11 pm CET) on July 30. The separation occurred after a 37-minute flight and the spacecraft systems checkout was then successfully completed over a period of approximately 3 hours. Built by Airbus Defence and Space, EUTELSAT QUANTUM heralds a new era of commercial satellite service. Its in-orbit reprogrammable features set a new standard in flexibility that will enable users, notably in the Government and Mobility markets, to actively define and shape performance and reach thanks to its software-based design. To be located at 48° East, and due to enter service during the fourth quarter of calendar 2021, EUTELSAT QUANTUM will offer extensive coverage of the MENA region and beyond. ESA and the UK Space Agency supported the development of the core technologies integrated into EUTELSAT QUANTUM, within the framework of a Public-Private Partnership between ESA, Eutelsat and Airbus Defence and Space.

### **Anuvu to Launch microGEO Satellite Constellation**

August 2, 2021 - For a company that has traditionally prided itself on not having the financial considerations associated with operating its own satellite network, Anuvu's announcement that it will launch the first 'Anuvu Constellation' with up to eight Astranis-made microGEO high throughput satellites might seem, on first blush, to be a tad off message. But for Anuvu CEO Josh Marks, there is no contradiction. The economics of operating heavy GEO satellites and microGEO satellites are very different, he notes, as the latter's principles of low-cost construction, fast build time, and fast launch time all make the economics of micro 'very attractive.' Moreover, he tells Runway Girl Network, microGEO satellites will better position Anuvu (formerly Global Eagle) to provide connectivity flexibility to airlines and cruise lines rather than "forcing all customers onto a heavy GEO satellite or a single constellation." It also continues the expansion of Anuvu's layered capacity model "and lays the groundwork for a global hybrid network that will include GEO, LEO, and MicroGEO capacity." Manufactured by Silicon Valley-based Astranis, the microGEO satellites are extremely small, weighing 400kg with a dimension of just one-meter cubed. The first two satellites, operating in the Ku-band, have a targeted launch date of early 2023, and will provide customers with high-performance connectivity over North America and the Caribbean.

### **SpaceLink Selected to Fly Demo on International Space Station**

August 2, 2021 - SpaceLink was selected by the Center for the Advancement of Science in Space (CASIS), manager of the International Space Station U.S. National Laboratory, for a funded demonstration of its end-to-end relay service which provides secure, continuous, high capacity communications between spacecraft and the ground. The demonstration will validate the use of a 10 Gigabit per second optical terminal, for real-time voice, video, and data exchange between ISS crew, onboard systems, experiments, and terrestrial users. In a highly competitive process, made available for companies and research teams to propose technology development concepts capable of being utilized in low Earth orbit (LEO), the SpaceLink concept was selected by CASIS. With this selection, SpaceLink can advance its proposal for a potential flight project to the orbiting research and technology development outpost sponsored by the ISS National Lab. The SpaceLink relay network is designed to pick up where the NASA Tracking and Data Relay Satellite System (TDRSS) leaves off and go beyond with unprecedented capacity that leverages the latest technology advances in optical communications.

## **EXECUTIVE MOVES**

### **ST Engineering Makes Senior Position Hire**

August 31, 2021 - ST Engineering has appointed Tan Lee Chew as President Commercial and also as a member of the Group Executive Committee, effective 1 September 2021. Reporting to Group President & CEO Vincent Chong, Lee Chew will oversee and drive growth for the Commercial cluster, which comprises three business areas: Commercial Aerospace, Urban Solutions and Satellite Communications, and accounts for close to 50% of Group revenue as of 30 June 2021. With Lee Chew's appointment, Lim Serh Ghee will relinquish his role as Chief Commercial Officer. He will remain as Group Chief Operating Officer (Operations Excellence), and also a member of the Group Executive Committee, until his planned retirement on 30 October 2021. Serh Ghee joined the Group's Aerospace business in 1984. He had held various senior management appointments over the years, and was President of the Aerospace sector from 2014 to 2020.

### **Nevion Founder Thomas Heinzer Becomes the Company's CEO**

August 23, 2021 - Nevion, a Sony Group Company and award-winning provider of virtualized media production solutions, today announced that company founder Thomas Heinzer has been appointed as the CEO of Nevion, effective from 20 August 2021. The appointment follows the departure of Geir Bryn-Jensen to pursue new projects. Nevion's existing management team remains unchanged. Heinzer founded signal routing and transport systems provider Network Electronics in 1996, which became Nevion in 2007. Heinzer has been a driving force in growing the company from a small broadcast equipment start-up to a global leader in media transport and service management solutions, which was eventually acquired by Sony in October 2020. He has been instrumental in the company's M&A activities, and has most recently served in the management team as EVP Strategic Projects for Nevion.

### **Neil Jacobs Joins Spire Global as Scientific Advisor**

August 6, 2021 - Spire Global, Inc., a leading global provider of space-based data, analytics, and space services announced that it has hired Dr Neil Jacobs as a Scientific Advisor. In his role, Dr Jacobs will work with Spire's leadership team to further commercialize the company's weather solutions and strengthen the data offerings to government partners. Dr Jacobs previously served as the Acting US Under Secretary of Commerce for Oceans and Atmosphere and Administrator of the National Oceanic and Atmospheric Administration (NOAA). Prior to his government post, he served as chief atmospheric scientist at Panasonic Avionics Corporation. He was previously Director of Research and Business Development at AirDat LLC, where he worked on the development of the company's Tropospheric Airborne Meteorological Data Reporting weather monitoring system before the company was acquired by Panasonic Avionics Corporation.

## **REPORTS**

### **Smallsat IoT to Become a \$1 Billion Annual Market**

August 31, 2021 - NSR's *M2M and IoT via Satellite, 12th Edition (M2M12)* report, published today, forecasts the dedicated IoT constellations market reaching \$990 million in annual total retail revenues by 2030, reflecting ~44 % of the total satcom IoT market. Due to the low cost of Smallsat IoT terminals and ongoing subscription fees to end users, a conservative scenario sees Smallsat IoT representing 71% of global in-service units (~13 million) by 2030, with much higher market share if the stars align properly. The coming years represent an inflection point for the satcom IoT industry, resulting in permanent changes to MSS and VSAT operators. But along with change comes opportunity, and the M2M/IoT markets are seeing opportunity, but strategies will need to be revisited, and change is inevitable for long term success.

### **Euroconsult Predicts Number of Connected Aircraft Could Double by 2030**

August 23, 2021 - The COVID-19 pandemic has had a significant impact on many global sectors, including the aviation industry. Leading global strategists at Euroconsult have analyzed the impact on the In-Flight Connectivity market in a comprehensive new edition of their Prospects for In-Flight Entertainment & Connectivity report. After an unprecedented year for the aviation industry, given the global impacts of the COVID-19 pandemic, leading international consulting and market intelligence firm Euroconsult have released the ninth edition of their report that analyses in-flight connectivity in commercial and business aviation. The report, entitled *Prospects for In-Flight Entertainment & Connectivity (IFEC) 2021* provides a comprehensive analysis of the market's global trends and forecasts for the next decade, in terms of connectivity provided to onboard passengers. It also presents an analysis of the impact on the market over the past year from factors relating to the pandemic, such as nationwide lockdowns, grounded flights and inaccessibility for new installations due to closed borders, estimating that in-flight connectivity service revenues dropped by almost one-third, totaling \$970 million.

### **Inmarsat Shows the Way for Future maritime Safety with Unique Data**

August 5, 2021 - Inmarsat, the world leader in global, mobile satellite communications, has published a new report based on an exclusive analysis of Global Maritime Distress and Safety Services alerts from ships. Drawing on distress calls sent free at the point of use via the Inmarsat network from vessels worldwide between 2018 and 2020, The Future of Maritime Safety report is published by the Inmarsat Research Programme and has been written by the team at Intent Communications. The new report also includes significant contributions from Kitack Lim, Secretary General of the International Maritime Organization; Guy Platten, Secretary General, International Chamber of Shipping; Ashok Srinivasan, Manager, Maritime Safety and Security, BIMCO; Kuba Szymanski, Secretary General, Intermanager; and

Stuart Edmonston, Director, Loss Prevention, UK P&I Club.

### **NSR Releases Global Satellite Capacity Supply & Demand, 18th Edition (GSCSD18)**

August 3, 2021 - NSR's *Global Satellite Capacity Supply & Demand, 18th Edition (GSCSD18)* is the longest running and most detailed source for satellite capacity analysis worldwide. With normalization from the COVID-19 pandemic on the horizon, supply and demand dynamics are now being reconsidered as satellite operators craft go-to-market strategies in order to tap into high-growth verticals. NSR's Global Satellite Capacity Supply and Demand, 18th Edition (GSCSD18) is a roadmap of growth opportunities across 13 regions through the next decade. This industry-leading market analysis is anchored on key quantitative metrics including capacity demand on FSS C-, Ku- and Ka-band as well as GEO-HTS and Non- GEO-HTS, revenues, and market share by satellite operator. GSCSD18 provides the strategic analysis and overview, central to capturing and unlocking this evolving market.

## **UPCOMING EVENTS**

**APSCC 2021 Webinar Series**, Virtual Event, <https://apscsat.com>  
LIVE Every Tuesday 9AM HK I Singapore Time

**Satellite 2021**, September 7-10, National Harbor, MD., USA, <https://www.satshow.com/>

**2021 Joint Conference on Satellite Communications (JS-SAT 2021)**, October 7-8, Pusan, Korea & Online, <http://www.kosst.or.kr/IC-SAT2021>

**NAB Show**, October 9-13, Las Vegas, USA, <https://nabshow.com/2021/>

**International Astronautical Congress**, October 25-29, Dubai, UAE,  
<http://www.iafastro.org/events/iac/iac-2021/>

**CABSAT 2021**, October 26-28, Dubai, UAE, <https://www.cabsat.com/>

**Global MilSatCom**, November 2-4, London, UK, <http://www.globalmilsatcom.com>

**Asia Video Summit 2021**, November 15-18, <https://asiavideosummit.com/>

**COSPAR Symposium**, November 15-19, Singapore, <https://www.cospar-assembly.org>

**World Satellite Business Week**, December 13-16, Paris & Online, <http://www.satellite-business.com>

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