

# SatMagazine

December 2021

YEAR IN REVIEW issue



The SpaceX Falcon 9 launch of NASA's DART mission from Space Launch Complex 4 East (SLC-4E) at Vandenberg Space Force Base. [www.spacex.com](http://www.spacex.com)



Second Generation  
GaN based SSPAs/BUCs



# YEAR IN REVIEW: *ST Engineering iDirect*

**For all of us at ST Engineering iDirect, 2021 was an inspiring year. It was a year when the satellite ground segment rose to prominence, with a heightened focus on the segment's bold ideas, fresh innovation, and meaningful progress. It was a year of close collaboration with our partners as we ushered in new technological developments to help our customers capture significant market opportunities. And it was a year of teamwork and celebration as we enabled greater connectivity around the world in so many rewarding ways. Here are a few of our highlights.**



The **MDM5010 VSAT modem** (pictured below) also made its mark. The modem achieved an aggregate speed of 600Mbps, making it the industry's fastest satellite modem for shared bandwidth capacity networks. While these speeds have previously only been achieved with *single channel per carrier* (SCPC) point-to-point modems, bandwidth-sharing efficiencies can now be augmented to satisfy the most demanding throughput requirements in markets such as cruise, trunking and cellular backhaul.



Our **iHub** (pictured below) also made its debut in 2021 featuring proven, standards-based *micro-TCA architecture* providing high-performance in a high-density compact hub supporting 100s of high-capacity beams in distributed HTS gateway architectures. Also showcased in 2021 was our IoT solution which saw successful demonstrations with our partner **hiSky**. The live demos proved that continuous satellite connectivity can empower applications such as telemetry and fleet tracking from moving vehicles over satellites using a highly compact flat panel antenna and IoT terminal with integrated modem.



## **Taking The Lead In Innovation**

We were pleased to introduce an initiative called **New Ground** to raise the profile of the ground segment and shine a light on the innovation and excitement that is happening across our ecosystem. New Ground promotes the empowerment and development of the ground technology and services that will enable the satellite industry to harness the promise of New Space and the move toward a 5G future in multi-orbit, multi-access environment.

The industry as a whole must focus on the adoption of the technology enablers that have already been taken on by the telco sector – the orchestration, standardization and virtualization that will be the foundation for a 5G future and the move to the cloud. Our partnership with **O3b mPOWER** is true testimony to this dedication, and a New Ground milestone, with the selection of our high-performance ground segment for this new MEO constellation. Our ground technology is key to optimizing the end-to-end capabilities of the satellites and the delivery of highly efficient networks with highly reliable services.

This year, we've also introduced **Mx-DMA MRC** and have pushed our **Mx-DMA** return technology even further. Mx-DMA MRC adds ground-breaking scalability and service agility features, extending the availability of Mx-DMA to large-scale networks all while expanding the applicability of the technology to include a full spectrum of use cases.



**Mx-DMA® MRC**

2021 saw industry players coming together with the formation of the **Digital Interface Standards (DIS) Working Group** to develop an open interoperability standard for the SATCOM industry. The standard will enable all manufacturers to build interoperable technologies that work in both open and closed network topologies, delivering the most advantages at the lowest cost. Digitizing the interface between modem and RF components using the new open standard, the industry will be able to leverage the latest virtualization, cloud computing and network function virtualization technologies as well as greatly improve the performance and scale of satellite hub, gateway and modem equipment.

## **Supporting + Enabling Customers**

This year, we have helped MNOs and Telcos to extend their reach in many different regions of the world. A tier 1 mobile network operator in Brazil deployed the **Dialog®** platform and state-of-the-art Mx-DMA return technology to deliver 3G, 4G and corporate internet services across the country. The network is now able to fulfill demand for cellular backhaul and corporate internet services to remote areas where terrestrial connectivity is limited or unavailable, easing business communications and access to mobile services.

In the Democratic Republic of Congo, Gilat Telecom installed two Dialog hubs to power cellular backhaul services for **Vodacom** on our Dialog platform. The solution 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 will replace traditional SCPC links and will deliver increased efficiency in order to facilitate 3G data traffic.

In Mexico, [AXESS Networks](#) deployed the first in-country **Dialog XIF hub** to deliver highly sought-after 4G mobile services to rural sites across the region. This effort helped connect the unconnected and bring solutions to those who had been left behind by the digital divide.

As 5G deployments begin early stages of rollout, Athens-based satellite operator [Hellas Sat](#) successfully validated hybrid 5G backhauling use cases over satellite over the **Evolution®** platform. Showcasing a completely seamless transition between terrestrial and satellite-based networks, the demonstration not only confirms the critical role that satellite will play in the 5G ecosystem through its capability to broaden coverage to hard-to-reach areas, but further reinforces its cellular backhaul capabilities across Hellas Sat's satellite coverage.



Vital satellite bandwidth was delivered to the *Andaman, Nicobar and Lakshadweep* Islands in the Indian Ocean for [BSNL](#) on Dialog. That means that 36 atolls and 38 islands will now have access to crucial economic and social tools through the connectivity we support.

In the Philippines, [Intelsat](#) selected the Evolution platform to grant broadband services to those who need them most across the archipelago of more than 7,500 islands in Southeast Asia. Satellite technology provides a cost-effective and reliable solution for broadband delivery, which is seeing rising demand across the region.

Satellite operator [Kacific](#) was an early adopter of our Mx-DMA MRC technology that has enabled the company to provide high-speed, low-cost, ultra-reliable broadband to rural and suburban areas of the Pacific and Southeast Asia. Kacific currently operates over 8,000 terminals, including the new cost-effective **MDM2010 modems** in Mx-DMA MRC mode, spread across 56 beams. Kacific also used our Dialog platform to launch their first VNO-enabled cellular backhaul service for **Mobile Network Operators (MNOs)**. The Ka-band mobile backhaul service is available to all ISPs, telecom operators and government agencies across all the countries Kacific services throughout Asia and the Pacific.

[Turksat](#) became the first to deploy a new security feature on the SatHaul-XE solution that was developed in partnership with Xiplink. The feature supports IPsec encryption with CMPv2 digital certificate management, building upon the existing high levels of security whilst maintaining optimization and acceleration.

In the broadcast segment, we're immensely proud of the delivery of the world's first end-to-end demonstration of a B2C use case of Native IP, demonstrating origination, transport, reception and consumption of live OTT video over satellite.

We partnered with [EKT](#), [Broadpeak](#) and [EasyBroadcast](#). This demonstration proved that satellite can deliver OTT content anywhere and to any device. This has far-reaching implications as its content delivery will not be limited to entertainment, but also will enable educational institutions to reach

their students, healthcare providers to offer telemedicine services and reach households that may not have a computer but do have a television so that they can enjoy access to information and content.

## Connecting Incredible Journeys

This year, we have been involved with two fascinating expeditions. Earlier this year, with our partners, [Telenor Maritime](#) and [Eutelsat](#), we were given a golden opportunity to play a key role in heightening awareness of the key role that our oceans play in enabling a sustainable environment. Together, we are providing real-time connectivity for the **ONE OCEAN expedition** aboard the antique sailing ship, *Statsraad Lehmkuhl*, as it circumnavigates the globe to raise the oceans' profile. Real-time connectivity is key to the success of the mission. This immediate access to data, video and stories from the ship will serve to inspire and engage not only scientists but also citizens for ocean-based action towards sustainable development worldwide.

In October, we once again provided connectivity to the *Belgian Agoria Solar Team* as they embarked on a grueling solar race across the *Moroccan Atlas Mountains*. The race, which tests university students' ability to design and build a solar car and then compete in a four-day race, was a replacement for the canceled Bridgestone World Solar Challenge, which usually takes place in Australia.

We were delighted, along with our partners [Intelsat](#) and [Kymeta](#), to provide connectivity to the 'brains' car for the duration of the race, enabling the crew to access crucial connectivity and to broadcast daily Facebook Live shows to keep fans posted on their progress. We'd like to congratulate the team on their fantastic achievement of second place.

## Industry Recognition

Another theme of 2021 has been our aspiration to, and success in, technological excellence. In 2021, we won a *Factory of the Future* award which marks the third time we have achieved this accolade.

The [ST Engineering iDirect Manufacturing Competence Centre](#) (MCC) was recognized for its best-in-class, future-proof and sustainable manufacturing technologies and processes. We also cemented our leadership and commitment to the mobility sector with the *Top Mobile User Experience Innovation Award* from the [Mobile Satellite Users Association \(MSUA\)](#). This recognition reflects our dedication to the delivery of innovative solutions that enable its customers to offer seamless connectivity as new constellations, applications and markets emerge. Our advanced SATCOM mobility solutions comprise a diverse, feature-rich set of capabilities and technologies to offer customers the utmost in choice and flexibility.

## Looking Forward

When we look to the future, we aspire to build upon our heritage of innovation and excellence when it comes to all things dealing with satellite connectivity. This year has seen us thrive through challenging conditions and the solutions we have created are still at the forefront of what's possible in the satellite space.

Tomorrow holds more promise than our industry has ever before witnessed. We look forward to taking our next steps on this journey together with our customers and partners.

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