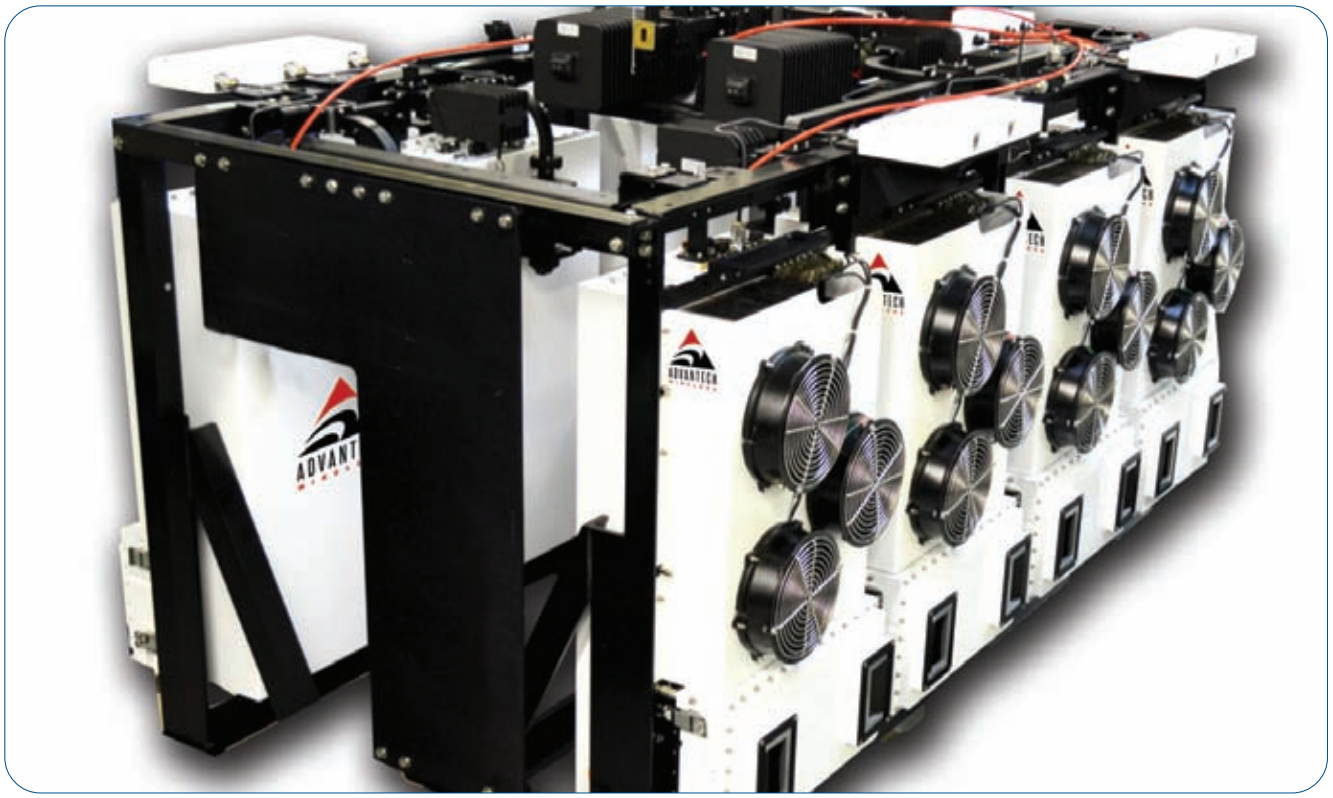

Photo courtesy of Advantech Wireless

# Moving from concept to reality

Advantech Wireless Technologies is a world-leader in wireless broadband communications solutions for commercial, infrastructure, government and military customers. Advantech's turnkey satellite and terrestrial solutions maximize performance and minimize operational costs. With a portfolio of amplifiers, converters and transceivers, among others, Advantech provides services and solutions to the broadcast, oil and gas, homeland security, maritime and disaster recovery markets. Cristi Damian, VP Business Development at Advantech opines on the state of the communications sector, and how current trends are impacting the company.

**Question: Back in January 2018, Baylin Technologies acquired the radio frequency divisions of Advantech Wireless Inc. What can you tell us about the acquisition, and the company's operations as Advantech Wireless Technologies?**

**Cristi Damian:** In January 2018, Baylin Technologies acquired the Advantech name, logo, and brand along with the radio frequency, terrestrial microwave and antenna equipment divisions. Baylin did not purchase Advantech's VSAT or SCPC modem lines.

Prior to the acquisition, Baylin's principal holding was Galtronics, one of the very few antenna companies in the world with design capabilities in three key markets: DAS and Small Cell, Networking and Mobile. Baylin viewed Advantech's decades of satcom and millimetre-wave engineering expertise as a strategic complement to Galtronics' technological expertise, particularly with a view towards the imminent 5G opportunities.

In July 2018, Baylin purchased Alga Microwave and MitecVSAT which brought additional engineering and manufacturing capabilities to the group, as well as a building that could house the operations of Advantech, Alga and MitecVSAT. By the end of 2018, Baylin made significant investments in the facility, creating one of the best state-of-the-art manufacturing facilities in the SATCOM industry. The consolidated operation will incorporate leading edge equipment, enhanced quality systems, advanced ESD protection, and superior working conditions which will optimize the operational efficiency, ensure the highest quality outputs and significantly reduce delivery lead-times. Together these teams will efficiently deliver one of the most ambitious R&D road maps in the industry.

**Question: Can you give us an overview of Advantech Wireless Technologies' extensive portfolio of technologies and solutions?**

**Cristi Damian:** Since the early 1990's, Advantech has been a pioneer in the satellite communications industry. We have a broad portfolio of solid state power amplifiers (SSPAs) (CW and Pulsed), RF converters, terrestrial microwave transmitters, satellite news gathering (SNG) antennas and antenna

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*Cristi Damian, VP Business Development at Advantech*

controllers that range from auto-acquisition for VSAT antennas to monopulse tracking systems for large aperture Ka-band antennas. With the addition of Alga Microwave, our catalogue was expanded to include an impressive line of passive microwave components and custom antenna feed networks.

Some of the markets we address include satcom ground stations for both military and civilian operators, satcom on the move (SOTM), military and weather RADAR, troposcatter, scientific electron accelerators, SNG, and both indoor and outdoor high-power amplifiers systems for applications such as DTH and large gateways that require thousands of watts of redundant RF power.

**Question: Technology is advancing at a rapid rate right now, with HTS moving on to XTS, proposed mega-constellations of LEO and MEO satellites, and higher frequency spectrum bands such as Q and V-band entering the fray. Where does that leave Advantech Wireless Technologies? What are the challenges, and opportunities?**

**Cristi Damian:** When it comes to technology, evolution and satcom, the gestation period for embracement tends to be long. With over 500 GEO satellites presently in orbit and many of them accessible for bent pipe services, it will be some time before the new platforms totally displace conventional GEO satellites. As a result, the full spectrum of ground station components will be a mainstay for years to come. With the adoption of IP as a common transport protocol, the desire for reduced latency and the appeal of complete global coverage, there is no imminent slowdown evident.

As satellite architectures move into the higher frequency bands (Ka-band and higher), we leverage our expertise in the design and fabrication of passive microwave components to achieve the power levels operators need to carry any significant content.

Being one of the first companies to deliver SSPAs to both Globalstar and Iridium (the precursors of today's LEO and MEO platforms), we are excited to see these new platforms moving from concept to reality. With potentially thousands of satellites in low Earth orbits, we can easily estimate the impact they will have on ground infrastructure. We will need hundreds of new gateways, TT&C stations and user terminals with sophisticated satellite tracking technology. Here at Advantech, we have been working for several years to ensure that all of our products are in alignment with these trends.

**Question: In the middle of 2018, Advantech Wireless Technologies launched its new 600W C-band Gallium Nitride (GaN) Solid State Amplifier/Block-Up-Converter (BUC) for Ultra HD 4K/8K broadcast applications. How does this product improve upon existing technologies, and what feedback have you received on this GaN technology to date?**

**Cristi Damian:** We have a growing base of loyal customers who come to us when they have a need to transmit high-order modulation at high data-rates. If you're watching an NFL game in Ultra HD 4K, it's very likely that it is being transmitted using Advantech's technology.

That outstanding viewer experience comes at a cost however because transmitting Ultra HD requires four times the bandwidth and four times the RF power. In 2008 we developed one of the first 64 QAM links over satellite using 30 meter antennas and 800W SSPAs. Today, our new 600W C-band GaN SSPA will accommodate the transmission of high-order mod/cods, at a fraction of the cost. When coupled with a mere 4.5-metre antenna, a 256 APSK data link is possible, resulting in a hardware-cost reduction of 95 percent. Thanks to all of these improvements, Ultra HD 4K performance is now affordable.

"Since the early 1990's, Advantech has been a pioneer in the satellite communications industry. We have a broad portfolio of solid state power amplifiers (SSPAs) (CW and Pulsed), RF converters,...."

**Question: What other new technologies is Advantech Wireless Technologies currently working on?**

**Cristi Damian:** The architectural differences between the Alga and Advantech amplifier products have provided us with the opportunity to take the best features of each to produce a new line of high-power amplifiers that push the limits of economy and performance. Our combined team of Alga and Advantech engineers is hard at work optimizing our broad spectrum of RF products for mobile applications in the low and medium power levels as well as our popular 'Summit soft-fail,' redundant packages for applications that require thousands of watts of S, C, X, Ku and Ka-band power.

By designing and producing passive components that minimize losses and pairing them with the latest in GaN device technology, we are to able deliver reliable products that push the envelope on power and efficiency.

**Question: What's on the horizon for the next year for Advantech Wireless Technologies?**

**Cristi Damian:** 2019 will be an exciting year for our company. Both the Alga and Advantech operations will be consolidated in a big, state-of-the-art facility with dedicated machine shops, internal pick and place lines and over a dozen CnC machines running 24 hours a day. We will be tracking advancements made in 5G and LEO constellations and collaborating with Galtronics to capitalize on the similarities between spot beam satellites and cellular network architectures. We can envision the next generation of teleports being very similar to the cellular towers that are used today in the LTE world. With their high-throughput and low latency, LEO satellites have unique capabilities that will complement the 5G large city's need for high-density coverage. Teleports of the future that support 5G will need very high power and high linearity - and this is where Advantech excels. ■


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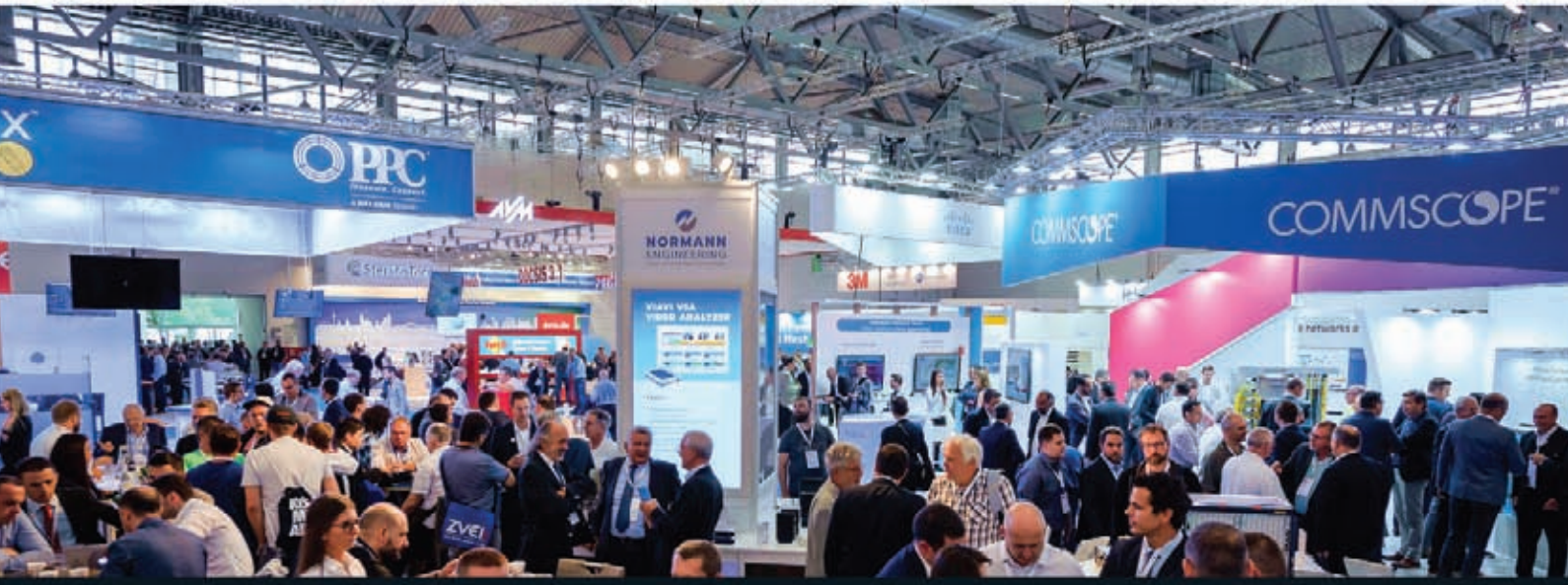


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