

Via Satellite's

# Tech Focus REPORT

A

Advantech  
Wireless

Leading the  
Innovation  
in Satellite  
Communication  
Solutions

 Access  
Intelligence

**A**dvantech Wireless is a leading-edge wireless end-to-end broadband communications solution provider. Established in 1988, Advantech Wireless designs, manufactures and deploys satellite and terrestrial wireless communications networking equipment for broadband connectivity, broadcast solutions, video contribution and distribution, mobile 2G, 3G and LTE backhaul and DTH & DTT video distribution and military communications. The company products include Next Generation VSAT hubs and Terminals, world-leading GaN technology High Power Amplifiers (SSPA), Block-Up Converters (SSPB), Frequency Converters, Satellite MCPC/SCPC/TDMA Modems, fixed and deployable Antennas, Antenna Controllers, Manpacks, Terrestrial Microwave Radios, Routers NMS, PEPs,

and military needs, the company is uniquely positioned to satisfy the most demanding requirements on land, sea and air. Advantech Wireless is delivering cost effective solutions today with successful projects implemented in more than 150 countries in LATAM, Europe, Asia, Oceania, Africa and North America and offices around the world.

**The world's foremost expert in GaN based High Power Amplifier and BUC technology and products.**

Advantech Wireless is the only company capable of offering a unique solution for services like DTH Broadcasting, High Data Rate Telecom Services and Deep Space Communication with impressive savings in energy costs, Satellite Bandwidth, CAPEX and OPEX.

Advantech Wireless' SapphireBlu™ Series of UltraLinear™ GaN based

- Modern Design Architecture, Ruggedized, All Outdoor
- Designed to withstand harsh environmental conditions
- Modular, Built in Redundancy, Plug In concept
- Save up to 30% on bandwidth and 70% on weight, size and energy consumption.
- CAPEX and OPEX savings
- High Reliability, at least 50% more than all existing SSPAs technologies
- The ultimate solution in terms of Power, Linearity, Efficiency !

This new architecture is designed for Multi Carrier operations, with power expandable to 3kW by phase combining. The build-in switchless redundancy is ideal for DTH Broadcasting, High Data Rate Telecom Services and Deep Space Communication.

Designed to meet the most demanding requirements, the new SapphireBlu™ Series of UltraLinear™ GaN based SSPAs and BUCs provide the ultimate in performance and convenience. From one antenna, one HPA is able to simultaneously transmit to all transponders of a satellite, regular or extended bands with high efficiency and low intermod distortions. The considerable reduction in size, weight, and energy consumption achieved with the New UltraLinear™ GaN based SSPAs and BUCs from Advantech Wireless makes this new architecture the ultimate Solution for DTH TV, offering to DTH providers up to \$200M in savings over the life of the satellite. Combined with Advantech Wireless high performance line of Satcom Antennas, these new systems are the only solution worldwide able to offer the maximum use of satellite bandwidth and power.



1250W Ku-Band SapphireBlu™ UltraLinear™ GaN based HPA

QoS and ruggedized military products.

For more than 25 years, Advantech Wireless has led the market with the most powerful innovations in technologies helping its customers obtain the most efficient and cost effective satellite and terrestrial microwave radio solutions.

As a global company, Advantech Wireless is committed to creating best-in-class technologies and solutions to meet and exceed its customers' needs and expectations. For both commercial

High Power Amplifiers won the 2013 Most Innovative Product of the Year Vision Award for its ground breaking performance and pioneering technology.

Featuring high power density in a compact, rugged and weatherproof package, the New SapphireBlu™ Class of UltraLinear™ GaN technology based solid state power amplifiers (SSPAs) and BUCs, exceed all barriers between Klystrons, TWTs and former generations of SSPAs.

- MIL-STD-188-164A certified

a single antenna and a single SSPA system. This replaces multiple antennas and up to hundreds of TWTs/Klystrons, with huge savings in energy cost, as well as CAPEX. The results are impressive both in terms of performance and cost savings, enabling the best ROI in the industry for its customers.

This achievement became possible due to a remarkably high level of power and linearity performance. Never before has this kind of performance been achievable using either Solid State, TWTs or Klystrons. Backed by over 25 years of outdoor SSPA design and manufacturing experience, combined with the traditional Advantech Wireless features, this is the only solution worldwide capable of offering the highest efficiency in use of satellite bandwidth and power.

Advantech Wireless has released a complete line of the SapphireBlu™ Series offering the same solution in regular and extended S, C, X, Ku and Ka-bands.

### VSAT Solutions

The complete line of VSAT Hubs from Advantech Wireless range from the Entry Level Discovery 100 through the Discovery 200 and Discovery 300, to the New Millennium Series High Capacity VSAT Hub and terminals for HTS. This powerful suite of products provides a solution well matched to a broad range of user applications and requirements. These next generation designs have been optimized for performance and reliability, with remote upgrade capabilities via software key as increased features are needed, thus minimizing upgrade cost and time without interrupting any services.

Advantech Wireless has developed a new line of VSAT Discovery Hubs based on patent pending Adaptive Satellite Access Technology (A-SAT™). A-SAT™ is beyond dual mode DVB-RCS/TDMA-SCPC, developed by Advantech Wireless several years ago and well ahead of the any solution available in the market. A-SAT™ monitors channel utilization and switches the satellite access method and MODCOD seamlessly for the return channel to dynamically

maximize the space segment utilization efficiency. This technology enables the user access to the best of both MF-TDMA and SCPC in a single network.

### Millennium Series VSAT Hub for HTS

Building upon Advantech Wireless' industry-leading Discovery Series of VSAT Hubs, the Millennium Series VSAT Hub for HTS extends the capacity, capability and efficiency to new levels of performance. A single rack can be configured to support upwards of 20,000 remote terminals and can support 775 Mbps of traffic to the remotes, spread across up to 5 different transponder/satellites and 480 TDMA carriers. This single rack can also receive up to 320 Mbps of IP traffic generated by the remote terminal population.

A powerful feature of the Millennium Hub is its redundancy capability. On the Forward Link (FL) and Return Link (RL),

the standard design incorporates a 1:5 scheme, whereby one FL chain and one RL chain operate in a Hot Standby mode, ready to automatically takeover in the event of a malfunction of any of the 5 active Forward Link or Return Link subsystems.

The Millennium Hub from Advantech Wireless is designed to operate with all fixed satellite regular and extended frequency bands (C, X, Ku, Ka and V-Band) and supports all of the Advantech Wireless family of Remote Satellite Routers, known as RCSTs (RCS Terminals). Star, star/mesh hybrid and high-capacity SCPC are all supported in the Millennium Hubs.

It is ideally suited for Network Operators and Service Providers. Scalability allows CAPEX expenditures to match network growth. Built-in VNO (Virtual Network Operator) capability allows support of numerous (up to 50) virtual operators. VPN capability provides secure communications for sensitive information transfers.



New Millennium Series VSAT Hub for HTS

### Ka-Band HTS Network Configurations

Advantech Wireless recently announced a game-changing terminal design which is set to dramatically improve and simplify the provision of VSAT terminals for use with High Throughput Satellites. The new terminal features a fully integrated Ka-Band transceiver and VSAT modem in a single outdoor unit that is able to receive the entire data capacity of a 500MHz Ka-Band satellite transponder, representing over 2.1 Gbps of traffic, and route the content appropriately. The unit requires



Ka-8000 Series\_Ka-Band Outdoor VSAT Terminal



only a single Ethernet cable to transport both power and data from a Power Over Ethernet device, and has no need for any indoor element, making it incredibly simple to install by both commercial and home users.

**Terrestrial Microwave Radios**

Advantech Wireless' Transcend™ 800 is the most affordable high capacity, high performance and flexible hybrid solution to demanding transmission, telecom and broadcast applications. Including backhauling 3G/4G traffic and Wireless Broadband Networks such as LTE, HSPA+, WiMAX, Metro WiFi, UMTS TDD and private communication networks carrying data, voice and HD video.

It can be easily integrated into existing networks allowing savings on both initial investment and operating costs with higher connection availability and longer distance connections. Advantech Wireless' Transcend™ 800 provides IP L2

line of Mobile Antennas, Quick Deploy Fly-Away Antennas and the largest Fixed Broadcast Antennas. Designed with the latest technology to meet and exceed industry standards, Advantech Wireless' Antenna Systems, and INTRAC™ Antenna Controllers offer world-leading performance, unmatched quality and accuracy. Providing monopulse accuracy performance at a fraction of the cost. Advantech Wireless' Drive-Away Antennas are easy to operate and ready to be installed in most vehicles. With the auto-pointing iPOINT™ Controller, and proven reliability, it provides the benefit of a fully integrated system. With one push button the antenna can deploy and start communications with up to 10 predetermined satellite configurations.

**Government and Military Solutions**

Advantech Wireless has a proven track record in providing communication equipment to key defense agencies in deployments around the globe. For over 25 years, Advantech Wireless has been providing military customers with solutions for both tactical and warfighter communications, empowering reliable and secure "Untethered Battlefield Command."

188-165A standard, designed to fulfill two way satellite communication requirements in Defense Satellite Communications Systems (DSCS).

The 25W GaN X-Band BUC (pictured in front) is perfectly suited for harsh environments such as man-pack terminal deployments. Constructed in a compact cooling enclosure for outdoor operation, it is the smallest fully integrated unit on the market today. Advantech Wireless' S5920M Ruggedized VSAT Terminal is a complete DVB-RCS modem that can be used in very harsh environments such as in military and desert operations.

Advantech Wireless family of ManPack terminals was specifically designed for the needs of a dismounted soldier or first responder. They are designed to be jumped or carried and then operate in inhospitable territory. The RAR9160 Ruggedized Router is designed to provide best in class performance for critical applications under harsh environments. Advantech Wireless' new line of ruggedized Tactical Wireless Smart MESH products, the KR Series, are specially designed to provide LAN and WAN access on the battlefield and on the move. ■



switching and L3 routing functionalities as well as True Adaptive Coding and Modulation (True ACM™). Transcend™ 800 is available in a split-mount version and all-indoor configurations.

**Antennas and Controllers**

Advantech Wireless offers a complete

The Raptor series of transportable VSAT Hubs are turn-key systems for tactical communications which can be rapidly deployed in less than 1 hour in the theater of war. The AMT-73L was the World's first deployed modem with certified compliance to the MIL-STD-

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