

BRIGHT FUTURE FOR INTERNATIONAL TWTA MARKET

January 2013

By Steve Walley, Vice President of Business Development, dB Control



With the ability to provide high power over wide bandwidths, and a reputation for withstanding harsh environmental conditions, traveling wave tube amplifiers (TWTAs) will continue to be in demand worldwide — both for defense and commercial applications. As these applications increase in sophistication there will be a need for even more bandwidth, which in turn requires the development of TWTAs that operate at higher frequencies, such

as K-band (18-26.5 GHz), Ka-band (26.5-40 GHz), Q-band (33-50 GHz) and V-band (50-75 GHz). Wider channel bandwidth translates into higher data throughput — a feature always in demand for defense applications.

The satellite communication systems market continues to grow as the demand for data, video and internet over satellite increases. Both commercial and military users are looking for more bandwidth and moving to Ka-band (27.5 to 31.0 GHz). Due to rain attenuation at Ka-band, more TWTA linear power output is required — and new TWTA development has addressed this requirement. The Radar Systems market continues to grow as new threats are encountered. The trend is for TWTAs with higher peak power output, and higher duty cycles to work in the system to help determine the range, altitude, direction and speed of incoming threats. New TWTAs with higher efficiency, smaller size and lighter weight are being developed. This continues to be a good market for TWTAs for ground, ship, and airborne radar systems.

Unmanned aerial vehicles (UAVs) present another great opportunity for TWTA manufacturers — both in the U.S. and overseas — because drones provide an unmatched level of situational awareness. There are currently 50 military organizations around the world using unmanned systems. IHS Industry Research & Analysis forecasts \$81.3 billion will be spent in worldwide UAV business from 2012 to 2021.1 Here in the U.S., DoD officials plan to spend at least \$5.78 billion on UAV technologies in fiscal year 2013.2 In terms of revenues, a Market Research Media report indicates that the U.S. military UAV market alone will reach \$86.5 billion by 2018. The report notes that “UAV technology is the answer for both a smaller Defense Department heavily reliant on

solid intelligence gathering, and for an increasingly militarized CIA overseeing the counterinsurgency drone strikes in Afghanistan, Pakistan and now Libya.

Next-Gen Opportunities Emerge Full Speed Ahead

While defense budgets have been reduced in the U.S. and Western Europe, IHS predicts that there will be no such cuts in China, Russia, Southeast Asia, Australia and India. Additionally, the tentative social/political environment in the Middle East and Latin America creates a need for more ISR (intelligence, reconnaissance and surveillance), possibly performed by UAVs. Of course, U.S. manufacturers must always be mindful of the potential for technology to be shared with an enemy. The Obama Administration will continue to reform export requirements for defense technology, especially for dual-use and/or ubiquitous products. Internationally, the Missile Technology Control Regime affects which medium and large UAVs can be sold to overseas markets. This restrictive, multi-lateral agreement spans 34 countries that have arranged not to share ballistic missile knowledge and components.

There is no doubt that defense contractors, military organizations and commercial companies will continue to seek competitively priced TWTAs that are smaller, lighter, and more efficient and reliable. To meet these requirements, dB Control continues to work with our TWT suppliers to improve the overall efficiency and reliability of the TWTs used in our amplifiers. As the efficiency of the tube is enhanced, the power required from the power supply is less — thus enabling it to shrink in size. A smaller power supply and more efficient tube results in less thermal dissipation, so a lighter weight heat-sink and/or fan can be used. This reduces the overall size and weight of the TWTA, and results in better reliability. As the TWTA market expands, designers and manufacturers must be equipped to meet these stringent — and often differing — requirements of both international and domestic users.

For more information, please visit our website.
www.dbcontrol.com