

VIEW FROM THE TOP

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Q: The “Internet of Things,” that is, everything (and perhaps everyone) being connected, will have an impact on the defense RF and microwave

industry. Will it affect your company and if so, how?

A: In some respects, the Internet of Things (IoT) is already a familiar concept in the defense RF and microwave industry. Considering the connectivity of the modern battlefield and amounts of tactical data shared, IoT as we know it will ramp up in the next decade. Gathering and processing very large amounts of data (i.e., high-resolution images and high-definition video) will require even more power and connectivity, which dB Control is prepared to deliver in the form of high-power, wideband TWTAs and MPMs. For example, General Atomics’ MQ-9 Reaper uses synthetic aperture radar (SAR) systems to serve as the remote pilot’s “eyes.” On this platform, the accuracy of transmitted images is directly connected to the performance, reliability and operational capacity of dB Control’s high-power TWTAs. Not only will there be increased emphasis on power, but also extremely stringent quality precautions will need to be put in place for IoT to work well in this sector. At dB Control, we employ a robust quality management system to comply with several requirements on the manufacturing floor—including ISO 9001:2000 and AS9100 traceability. The entire defense electronics manufacturing process will need be even more closely regulated, and dB Control is prepared to go above and beyond standard compliance.

Q: If some or all of your company’s products are designed for defense applications, what are your feelings about this market sector in 2015?

A: This upcoming year is still ripe with opportunity for UAV applications. A Market Research Media report indicates that the

military UAV market alone will reach \$86.5 billion by 2018, and we expect it will keep climbing. The technology onboard UAVs will only increase in sophistication, so TWTAs must keep getting smaller, lighter and more efficient. We’ll continue adding to our research and development efforts, and to our manufacturing/testing capabilities, to ensure we stay ahead of the curve.

Q: If you had to pick just one commercial application (carrier wireless, Wi-Fi, etc.) that has the most promise in 2015, what would it be and why?

A: It would be the commercial application for UAVs. “Drones,” as the civilian world likes to call them, are already used for border patrol, scientific research, search and rescue operations, shipping-sea-lanes patrol and natural disaster detection. Amazon’s announcement about using drones to deliver products definitely spurred conversations about the possibilities. In fact, Derrick Maple, principal analyst at IHS Industry Research & Analysis, forecasts \$81.3 billion dollars in worldwide UAV revenue from 2012 to 2021. Here’s another example. When Typhoon Haiyan devastated the Philippines late last year, Northrop Grumman used its Global Hawk Block 30 UAV to collect wide-area images of the impacted zones. Using its electro-optical and infrared sensors, the Global Hawk captured 1,000 planned images, plus ad hoc data collection. Disaster relief efforts can be much more robust and efficient because many UAVs can cruise for more than 30 hours at altitudes above 50,000 feet.

Q: Are you watching any emerging application or applications that you think will be major drivers beginning in 2015? If so, please describe.

A: Advanced ECM systems and EW threat simulators will drive the development of TWTAs and MPMs that operate at higher frequencies, such as K-band (18-26.5 GHz), Ka-band (26.5-40 GHz), and Q-band (33-50 GHz). These products must provide very high stability of the

transmitted waveform, spectral purity and higher power over a wider bandwidth. To help drive these applications, dB Control designed and manufactured an efficient MPM (dB-4127) with double the output power of previous models. It provides 200 Watts of continuous wave RF power over a frequency range of 6-18 GHz. Not only does it meet the power requirements of emerging applications, it’s on average 30 percent more efficient than other MPMs, thanks to its highly efficient high-voltage-power-supply topology and critical component placement for an optimal thermal design. Likewise, we also recently introduced a series of Ka-band TWTAs (dB-3860, dB-3840, dB-3709i) that allow greater range because they feature higher power designed for sophisticated radar systems.

Q: In your opinion, what changes must the RF and microwave industry make in the coming years to ensure that it most effectively delivers the solutions customers want?

A: Addressing product degradation is essential. For instance, the DoD’s Unmanned Systems Integrated Roadmap for fiscal years 2013-2038 emphasizes the need for UAVs “to operate in more complex environments involving weather, terrain, distance, and airspace.” Threat emitters, the devices that are used to simulate electronic signatures of possible enemy radar, are also subject to degradation in adverse conditions. To solve this problem, hub-mounted TWTAs and MPMs enable threat emitters to simulate multiple threats over a wide band even under adverse conditions. When integrated into a threat system, the emitters can transmit with less waveguide loss, thus creating greater overall RF power. With much more output power than solid-state products and a rugged design, dB Control TWTAs and MPMs can operate in extremely adverse conditions. And with an operating life of more than ten years, they provide a continuous source of reliable power for the defense applications.