

Andy Tafler, President of CPI's Satcom & Medical Products Division ●●●

Q&A

Staying at the leading edge

The Satcom & Medical Products Division of Communications & Power Industries (CPI Satcom) is a world leader in uplink amplifier products and systems for satellite communications. The company has played a vital role in the satellite industry since its inception, having supported the first satellite projects, INTELSAT and CONUS. To date, CPI Satcom has shipped more than 50,000 high power amplifiers (HPAs) to more than 150 countries. Andy Tafler, President of CPI's Satcom & Medical Products Division, opines on recent developments in the satellite sector and the company's position looking ahead.

Question: 2018 was a busy year for CPI Satcom. What can you tell us about the company's key achievements during the year?

Andy Tafler: During 2018 we continued to work hard to stay at the leading edge of both solid state and VED-based satellite amplifiers. This included products at the new V-band frequencies, expanding our portfolio of IFEC KFRUs and transceivers, and expanding and updating our now extensive solid-state product line with GaN technology.

Question: There's a lot of change in the satellite sector right now, with high throughput satellites (HTS) moving on to extreme throughput

satellites (XTS), and new trends in small satellites and mega-constellations. What are the emerging opportunities for CPI Satcom in all of this?

Andy Tafler: New systems, such as those necessitated by the advancement of XTS, small satellites and mega-constellations, often require from their uplink HPAs higher frequencies, higher volume production, more output power, more compact size, less weight, or some combination of the above. In addition, these systems may demand new interfaces and monitor and control capability. While the basic principle remains the same with the new systems as with the existing systems – for HPA manufacturers such as CPI to amplify a signal at a certain frequency for uplinking to a satellite – these stringent requirements for new systems can offer both considerable opportunities and challenges for HPA manufacturers.

CPI Satcom is working diligently in all these areas to take advantage of the opportunities, and we believe we are well-positioned to help our customers succeed. We also benefit from being the only HPA manufacturer able to utilize both GaN solid state and travelling wave tube technologies to fulfil our customers' needs in existing and new market opportunities.

Question: With so much change in the satellite sector, what can you tell us about the impact on CPI Satcom's existing markets?

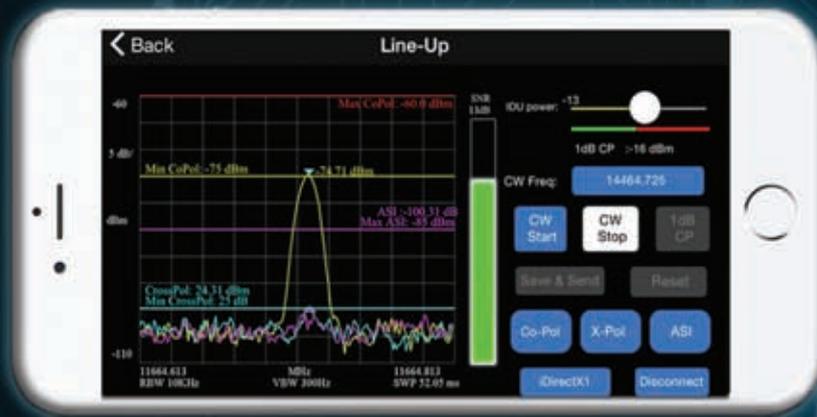


CPI TWTAs come with advanced graphical user interface. Photo courtesy of CPI Satcom ●●●



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Andy Tafler: As we have all seen, the amount of change that is going on in the industry has simultaneously created a bit of paralysis in the industry. There are so many divergent new opportunities for transmitting data, that no one opportunity has emerged as a winner yet. We believe that this uncertainty has created pent up demand for satellite communications products, and it seems that the industry is creating an enormous amount of supply, with the reasonable hope that demand will catch up. How quickly demand catches up might depend on the price of transmission, which could potentially drop considerably as investors look for the new constellations to realize their promised revenue. We therefore expect a steady increase in demand for satellite communications products, especially as long as world economies continue to grow.

Question: The antenna market is moving on in leaps and bounds as electronically steerable and phased array antennas enter production. What's your take on these developments?

Andy Tafler: The GEO satellite Direct-to-Home TV and Internet services, for example, became successful because the customer premises equipment (CPE), including earth station antennas and RF electronics, could be produced very cheaply. This was necessary to

ensure that households could easily afford to absorb the amortized value of their CPE.

The advent of LEO and MEO systems has generated a similar need for low cost user terminals in order to ensure high subscriber penetration levels. However, unlike the GEO scenario, current LEO and MEO systems are in dynamic orbits and require stringent pointing and tracking characteristics for the subscriber terminals. Mechanically steered antennas, such as the antennas produced by CPI, excel at both of these requirements, thus making them very suitable for professional, high capacity use.

That sophistication, however, does not come at a price point that could be considered affordable for consumer offerings. Phased array antennas offer the promise of eliminating the mechanical steering, thus simplifying pointing and tracking challenges, and possibly extending the useful life of CPE systems. While this technology is promising, it is still not fully mature and will likely be unable to match the currently desired price points. However, for niche applications such as in-flight-connectivity (IFC) where the low-profile characteristics and electronic steerability of phased array antennas may offer benefits, these antennas may see significant growth as they continue to mature.

Question: We're hearing more and more about higher frequency devices, with new V and Q-band products already hitting the shelves. Will CPI Satcom be getting in on this action?

Andy Tafler: Of course. In order to thrive as a company, we must keep up with the latest technology demands so that our customers can retain their technological edge, as well. Although we cannot publicly provide much detail at this time, let me just say that we are already fielding inquiries for these products and are working on solutions. CPI Satcom is well-versed in both solid state and TWT amplifier technology, and we expect both technologies to be in high demand at the new frequencies very soon.

Question: In terms of new products, what is CPI Satcom working on right now?

Andy Tafler: CPI Satcom is continuing to build out our GaN-based solid state product line, with high power in traditional frequencies, as well as our previously-mentioned forays into Q and V-band for both TWTAs and SSPAs. As technology continues to advance, we are always looking for ways to improve our existing product lines, such as we did when we debuted our patented LifeExtender/LifePredictor technology.

CPI Satcom also continues to look at opportunities for adding value to our amplifier product lines with the incorporation of block upconverters into our HPAs, as well as optional interfaces such as fibre optics for higher frequency applications.

Question: What's on the cards for CPI Satcom in 2019 and beyond?

Andy Tafler: Industry-wide, the race is on to be the first HPA manufacturer to offer proven, field-tested products in the higher frequency bands, and then to be able to reach high-capacity manufacturing to meet the schedules of the new, large constellations. This may be a daunting task for some companies who are used to job-shop type production, but this is a familiar and welcome challenge for CPI. We have shipped hundreds of SSPAs and TWTAs to individual programs without sacrificing quality, and we know we will be able to continue to do this in the future. Success is in sight. 🌟



Orbital Systems LLC, a unit of the Antenna Systems Division of Communications & Power Industries LLC (CPI), designs and manufactures high performance antenna systems ranging in size ●●●