



Photo courtesy C-COM

Quality counts

C-COM Satellite Systems Inc. was founded in 1997 to provide a variety of fixed and mobile antennas for a range of fixed and mobile applications. Its proprietary mobile auto-deploying iNetVu® antennas are widely-used for military communications, oil and gas exploration, SNG, disaster management, mobile banking and cellular backhaul applications, among others. C-COM is also exploring phased array antenna technology for the development of next-generation mobile antenna solutions. Amy Saunders spoke with Jonathan Lee, Director of Sales – Asia-Pacific at C-COM to find out more about the company's market environment, current projects, and its views for the future.

Question: Can you provide an overview of C-COM's development over the years, from its founding to where it stands today?

Jonathan Lee: Twenty years ago, C-COM was a startup company with a focus on the fixed satellite business. Today, we are a leader in the mobile VSAT market and have become a benchmark that our competitors follow. As one of the leaders in the field of mobile, comm-on-the-pause (COTP) auto-pointing satellite antennas, C-COM's development is characterized by a combination of market savvy, technology leadership and first-rate entrepreneurship.

Just to give you an example: C-COM was the pioneer in creating one-touch controller technology which allows

users, with no satellite experience, to simply press a button and lock onto satellite in just a few minutes. Our controller has been integrated and made compatible with over 30 different satellite modems from major vendors in the satellite services industry. We were also the first to use DVB and DVB-S2/ACM in our advanced controllers and, I believe, our latest generation of antennas provide the fastest satellite acquisition solution on the market today.

We have sold more than 8,000 systems to our dealer network, in over 100 countries. Most importantly, our partners are extremely happy with our products and the after sales service they receive. We work very closely with them to keep innovating and make improvements to our antennas. Many of

them cannot afford to be down, or offline, for even a moment. It can make the difference between saving many Dollars and/or saving many lives.

C-COM is also involved in developing satellite-on-the move (SOTM) products which should be introduced to the market later this year. Our R&D team is also working on a revolutionary next generation intelligent Ka-band electronically steerable phased array antenna, which is being developed in conjunction with a team of scientists and engineers at the University of Waterloo.

Question: What can you tell us about C-COM's products and services?

Jonathan Lee: Extremely reliable, durable, easy to use and cost effective.



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Jonathan Lee, Director of Sales – Asia-Pacific



For us, reliability not only means 'lasting longer with less problems.' It also means that every time, when the user presses the button on a C-COM iNetVu® antenna controller, they will find the desired satellite and begin communication.

I can share with you an example of

this reliability as it compares to our competition. We visited one of our customers, a multi-billion Dollar company in Asia, which has deployed many hundreds of our antenna systems. We asked them how C-COM could improve our product based on their user experience. They told us that they had purchased many of our competitors' product to compare with ours, and the reason they keep buying our antennas was simple: It was the brand that has exhibited the lowest failure rate in five years of continual use.

C-COM is very proud of the service level it provides to our customers. When people talk about C-COM, they never fail to mention the excellent after sales service they receive. Our technical support team is carefully selected, well trained and experienced. They work responsively in a timely manner to make sure our customers and resellers get the best support possible. As an industry expert, we also provide informative and intensive training to our resellers, both on site and in our Ottawa location.

Question: Where does C-COM see itself in the market, and where does it see the greatest opportunities for growth going forwards?

Jonathan Lee: Since we are already present in over 100 countries around the globe, we do not see significant changes to our geographic composition or the industry segments we are presently serving. However, with the rollout of Ka-band services, and the notion that everyone wants more data for less, we do see the change of their communications needs shifting to lighter, more portable products capable of greater bandwidth speeds.

C-COM works very closely with major HTS operators and service providers to ensure compatibility and certifications with upcoming new services. C-COM was the first to market with ViaSat Exede in North America, Eutelsat Tooway and Avanti Hylas in Europe, as well as Yahsat YahClick in the MENA region. The investment we made into this technology, over five years ago, has been paying off with large number of C-COM Ka-band



Photo courtesy C-COM



antennas deployed on Ka-band services.

Today, C-COM has a wide range of Ka-band auto-deploy antennas supporting all major Ka-band HTS services including HNS Jupiter, SES Thor7, Avanti, Yahsat, RSCC and others.

HTS services are on the expansion, and year-after-year new regions are being covered with HTS satellites, and so is the opportunity to roll out our approved antennas along the way.

Question: How does C-COM differentiate itself from its competitors?

Jonathan Lee: Besides reliability and service, C-COM's delivery is also the fastest in this industry. We deliver product, from stock, in days, compared with others doing this in weeks or months. In some cases, we can fulfil an order the same day we receive it - particularly important in cases of emergency when a product must ship as fast as possible. This unburdens the reseller from having inventory and he can rely on just in time delivery from C-COM, a critical feature in our 'immediate demand' industry.

It is worth to noting, as well, that C-COM is a publicly traded and well-managed company with zero debt and



Photo courtesy C-COM

a very strong balance sheet. We are working in a very competitive market place, and a strong financial position ensures that we can overcome business downturns, which happen from time to time in this sector. Over the years, we have seen several our competitors come and go, leaving many of their customers with unsupported and obsolete technology. Our resellers are aware of this and appreciate the stability C-COM provides to them and their customers.

Question: The satellite industry is currently in a major state of change,

with massive small satellite constellations and high throughput satellites (HTS) really shaking up the field. Which emerging trends and challenges do you think will have the biggest impact on C-COM's operations?

Jonathan Lee: Regarding HTS, our existing products are well positioned to take advantage of this new and rapidly developing market, especially in Ka-band, in which we see large opportunities for C-COM. Our new generation antenna terminals have all the adequate approvals from major satellite operators and modem manufacturers. We will continue to integrate with any new modems and services which are rolled out in this market.

As for the new constellations of LEOs and MEOs, it's a bit too early to tell, but we see this as a very large opportunity for C-COM to develop new antenna terminals which can cater to these emerging services. We are hoping that the new phased array antenna technology being developed with the University of Waterloo will address these constellations.

At this moment, all those massive small satellite constellations seem to be missing one important element - a low cost electronically steerable phased array terminal. Conventional terminals are not able to deliver the full potential of many of the LEO and MEO constellations being launched, especially when it comes to mobility. This is part of reason why C-COM has decided to invest in the development of a revolutionary, intelligent, conformal, scalable, electronically steerable phased array antenna, which will eventually make it possible for GEO and LEO constellations to penetrate all



Photo courtesy C-COM



market segments, presently not reachable cost effectively. This will also include cars, ships, trains, buses, UAVs, aircraft etc. that will benefit from the availability of a low cost intelligent terminal.

Question: What can you tell us about development of your modular phased array antenna to date, and how does the technology compare with other phased array systems under development by rival companies?

Jonathan Lee: The phased array project with the University of Waterloo is progressing very well. Last year we successfully tested our first 4x4 ka-band phased array module, which was based on our patented phase shifter technology.

This was followed by beam steering tests on a small 1x4 module, and later last Autumn we filed a patent-pending new technology to calibrate a two-way phased-array mobile antenna.

The main advantages of the new technology is its modularity, scalability, low-cost, low power consumption and the capability for phased-array systems to auto-calibrate in the field.

In January of this year, C-COM announced co-funding of an Industrial Research Chair held by Professor Safieddin Safavi-Naeini in Intelligent Antenna and Radio Systems for the next-generation millimeter wave mobile communications at the University of Waterloo alongside the Natural

Sciences and Engineering Research Council of Canada (NSERC). The five-year project's primary goal is the development of a new modular, low-cost, intelligent antenna for the next-generation of mobile satellite communications.

This kind of investment demonstrates our company commitment for the advancement of this new technology. We strongly believe that by developing a low-cost, light weight, ultra-thin intelligent core antenna module, it will provide the basic building block for antenna scalability to meet any future antenna requirements. This modular antenna approach will enable antenna designers to size up any antenna depending on the target application and its requirements.

Other possible applications for the new phased-array antenna technology include its extension to higher millimeter-wave band to be deployed in telecommunications for the next-generation 5G mobile cellular that are expected to become a reality in the near future, and also in sophisticated automotive radar imaging for sensory systems in self-driving vehicles.

Question: In addition to flat panel and phased array antennas, several companies are focusing heavily on the development and commercialization of multi-band antennas. Where does C-COM stand on this trend?

Jonathan Lee: C-COM currently has no

plans to develop dual or multi-band antennas.

We believe the market for such antennas is limited to few applications which we are not looking to address in the near future. However, C-COM has developed its antennas to be field upgradable, and we do provide the appropriate upgrade kit so users can easily switch their antennas from Ku to Ka-band services and vice-versa.

Question: What's on the horizon for C-COM in the rest of 2017 and beyond?

Jonathan Lee: We will continue to increase our worldwide market share of the COTP systems by introducing our existing and yet to be deployed new products into new market segments. We also plan to release our Ka-band COTM antenna product, which should be certified for use on ViaSat and Eutelsat, providing the first such working antenna system to the commercial market place in North America and Europe. We will continue the development and testing of the revolutionary Ka-band intelligent phased array flat panel electronically steerable antenna system, and provide our customers with results of this progress as they materialize. All the new products we are developing for production in 2017 will provide our worldwide resellers network with a new opportunity to expand their product offerings and generate incremental sales in addition to the existing sat-on-pause products. ■



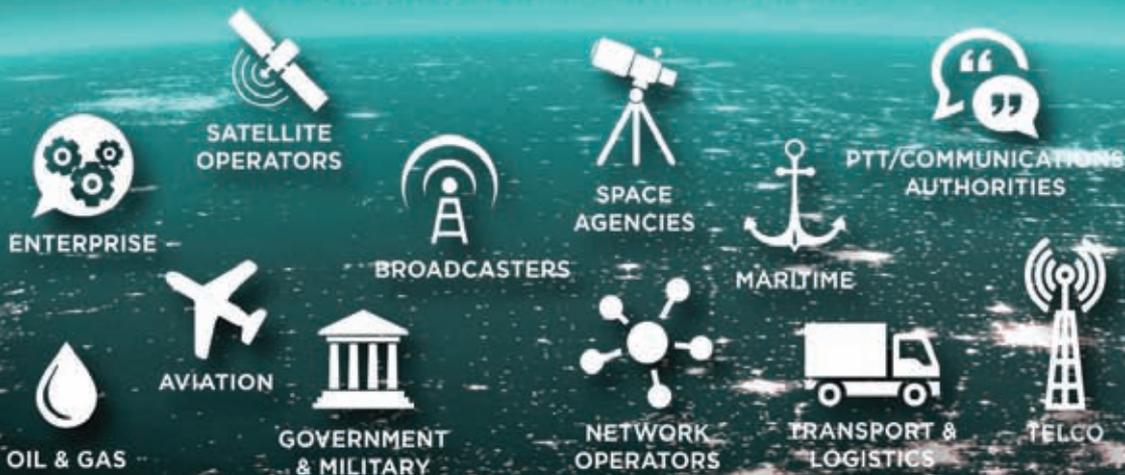
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