**Innovation in the DNA**

EM Solutions’ CEO, Rowan Gilmore proudly states: “Constant innovation through better design is in our DNA”. With their highly experienced workforce and ‘can do’ attitude, it becomes obvious that EM Solutions is a leading communications technology manufacturer for good reason. GMC poses the questions to Gilmore to dig deeper into the Australian company’s background and current work.

GMC: Can you give us some background on EM Solutions as a company and how it came to be established?

Rowan Gilmore: The founders of EM Solutions first spun out a company called MITEC from a microwave technology development centre at the University of Queensland in Brisbane, Australia in 1984. When that was sold in 1998, they went on to create EM Solutions as a specialist RF and microwave products company, and subsequently to grow the company into the systems company serving satellite markets that it is today. Even today, EM Solutions provides services to products developed by MITEC over thirty years ago.

GMC: The defence communications sector has evolved greatly over the last 30 years, and you have witnessed these changes. From your perspective, what are the most important and notable changes that have happened during your career so far?

Rowan Gilmore: The first was the switch from analogue to digital coding and modulation in the late 1980s, and then the emergence of the Internet in the late 1990s. The expectation that high speed multimedia should be available on demand anywhere in the world has subsequently forced satellite providers to respond with higher bandwidth and spot beam solutions. That’s why our solutions are focused on enabling high data throughputs across multiple satellite bands, especially at Ka-band.

GMC: Can we talk about your heritage and capabilities in the amplifier field and the developments that you are currently evolving?

Rowan Gilmore: EM Solutions has always developed bespoke and customized solutions for its customers, which initially were the Australian Defence Force (ADF) and local telcos.

From our roots as a developer of solid-state power amplifiers, filters, and oscillators we have progressed up the value chain to develop high speed receivers and transmitters for radios, and now on-the-move terminals, to become the partner of choice for several European systems integrators. For example, our 50W Ka-band linearized BUC is the only airborne qualified BUC on the market, and was first developed specifically for a customer in Europe.

EM Solutions is recognised by customers globally for designing and manufacturing differentiated microwave and RF products and systems for satellite and broadband communications. Renowned for technologically superior design, manufacture, and support of microwave technology, EM Solutions are leaders in supplying next generation high speed communications products that assist in the delivery of real-time voice, data and multimedia anywhere in the world.

Committed to innovation and delivering quality solutions, EM Solutions consists of an agile team of people able to provide superior communication technology quickly and accurately with full design, manufacture, testing and support services available in-house and governed by strict ISO9001 quality practices.

Emerging from its predecessor company MITEC in 1998, EM Solutions produces integrated RF modules such as low noise receivers and solid state high power transmitters for defence and commercial customers, as well as the complex systems in which they are used. These sophisticated systems are used primarily in microwave terrestrial and satellite links, or in other applications such as radar, radio-astronomy, and remote sensing.

With a customer base of more than 200 of the world’s largest systems integrators and telecommunications companies, the company delivers nothing but high-quality products and services.
GMC: At what point did the EM Solutions team move into satcom on-the-move terminals and where has this journey taken you?
Rowan Gilmore: It was in 2008 that EM Solutions won its initial sponsorship from the ADF to develop a land-mobile Ka-band terminal. We were fortunate that we were able to test multiple prototypes over the Optus C1 satellite and to perfect our “monopulse” pointing technology before progressing to WGS testing. The development of this unique pointing technology has taken us on other fruitful journeys; for instance, we have production E-band radios that now link the New York financial markets, offering double the speed, double the range, and an order of magnitude faster latency than our closest competitor.

GMC: Can you tell us more about the contract that you are currently involved with for the ADF for wideband COTM terminals?
Rowan Gilmore: Terminals should be able to roam between satellites in the same way as a mobile phone. For the Royal Australian Navy we will be in ship trials early next year, with a one metre maritime terminal that operates simultaneously at X and Ka-bands with the WGS satellite and can fall back to commercial Ka-band when needed. Our goal is to offer more robust and assured communications than can be achieved with just one satellite, by switching between bands and satellites all on the one platform automatically.

GMC: Which products will you be showcasing at the DSEI event?
Rowan Gilmore: We will be showcasing our land-mobile 48cm Ka-band on-the-move terminal that is WGS capable. In addition, we will have our Ka multiband Diamond series BUCs on exhibit. These use GaN devices, cover an entire 3GHz of RF bandwidth, and are fully linearized, still providing the smallest form factor on the market. Our new nano BUC HUB is also now shipping, it provides the 3GHz linearized upconversion functionality on its own and can be used as a split system with a separate power amplifier.

GMC: EMS does a lot of work with the ADF, but are you working with other defence forces - are you looking to expand your operations in the future?
Rowan Gilmore: Absolutely! We are a highly collaborative company, and through partners in Italy and Spain for example we are developing products to meet the emerging needs of defence forces in those and other countries around the world. Our new 1m X/Ka- maritime terminal is of interest to several WGS signatories who want to reduce their reliance on a single band and increase their on-air availability. Of course, we are also serving civil defence forces as well, for instance in Japan where the Fukushima disaster caused a re-evaluation of the country’s communications infrastructure.

GMC: What kind of support do you offer your customers, and what would you say are your unique attributes as a company?
Rowan Gilmore: EM Solutions best supports its customers by rapidly responding to their needs, for instance by customizing products to their specific requirements. For example, we have been asked to add Ku-band capability to our X/Ka- maritime terminal, and we are looking at the quickest way to bring this to market. We also work with partners in Australia to help design and build other RF and microwave products for their defence customers, such as for radar and EW.

GMC: What are your ambitions for EM Solutions five years down the line?
Rowan Gilmore: We want to remain globally recognized for the level of our innovation, and we want to be the partner of choice for more multinational defence system integrators. With so many customized products, we hope that we can scale many of those into much larger production volumes. And finally, we intend to carve an even deeper niche for ourselves in high end satcom on-the-move terminals and high speed telecommunications products.