ISSN 2691-395X

AEROSPACE & DEFENSE REVIEW

aerospacedefensereview.com

EUROPE SPECIAL

ELECTRONIC WARFARE SYSTEM EDITION

PROCITEC

Adapt To The Ever-Evolving Signal Processing Trends

As electronic warfare undergoes rapid technological advancements, analyzing wireless communication signals to recognize and predict threats has become crucial for any military or intelligence unit. Today, the integration of large multipurpose surveillance systems requires purpose-driven functionalities as well as thorough knowledge pertaining to signal monitoring to analyze signals for insightful comprehension. As a result, armed forces that operate in the ever-changing environments of warfare necessitate smaller, more mobile Low-SWaP (Low Size, Weight & Power) systems to detect, identify and track signals.

Equipping clients with the ability to monitor and analyze wireless communication signals effortlessly, PROCITEC's go2signals software integrates into Low- SWaP devices as well as large systems, ensuring scalability and interoperability. The software can be scaled to suit small teams operating with Low-SWaP manpack/manportable systems as well as highly qualified and skilled SIGINT/COMINT specialists that oversee communication from global radio monitoring stations.

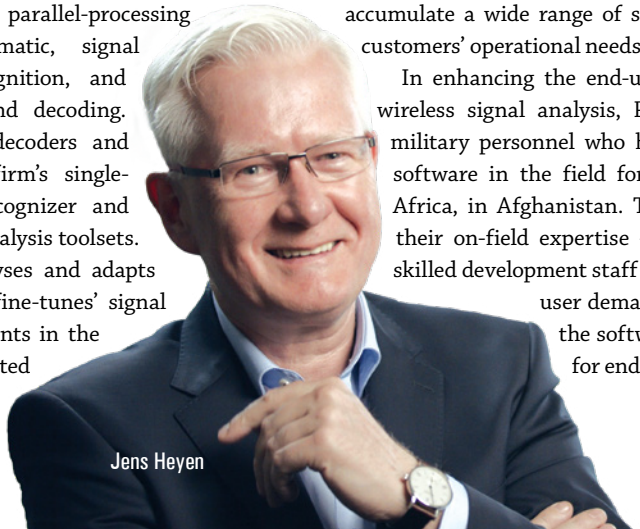
"I am often asked, what is the current trend?" says Jens Heyen, CEO of PROCITEC, explaining his thoughts on signal processing. "In the ever-evolving field of Electronic Warfare, it's very difficult to name one current trend or "the" trend. In that light, our software can be reconfigured and adapted to customer requests, be it software for Low-SWaP or large surveillance or interception systems."

The firm's go2signals product line offers a collection of complementary tools to search, monitor, process, and analyze HF up to SHF signals. The Monitoring Suite (go2MONITOR) and the Analysis Suite (go2DECODE, go2ANALYSE) —cover the entire spectrum of software-based signal processing requirements, providing clients with the capacity to adapt and tailor their monitoring tasks to their liking. The go2MONITOR application leverages wideband parallel-processing techniques to enable automatic, signal detection, classification, recognition, and multichannel demodulation and decoding. To help users develop new decoders and protocols, go2DECODE—the firm's single-channel automatic signals recognizer and decoder—uses manual signal analysis toolsets. In addition, go2DECODE analyses and adapts demodulator parameters and 'fine-tunes' signal monitoring tasks. Assisting clients in the forensic analysis of demodulated data signals at the bitstream level the go2ANALYSE tool is providing the necessary tools and displays.

With the help of go2signals, the user can automate monitoring tasks and tailor the configuration to improve the amount and quality of results, manage the increasing density of signals and sub-bands in the RF spectrum, and "stay current" with the evolving trends in the industry. Go2signals software can be easily integrated into existing infrastructures and assists users to enhance their systems with the necessary functions such as classification, demodulation, and decoding of signals. Go2signals combines 35 different demodulators and approximately 200 decoders supporting more than 350 available modem types bundled in Standard, PMR/SAT and MIL packages. Custom decoders are easy to integrate using the Decoder Development Environment. PROCITEC's decoder has the ability to decode current as well as old legacy systems, which are considered 'dead' but are brought to life to exchange cryptic information.

Demonstrating its operational & technical prowess, PROCITEC was recently approached by a new go2signals user-group to assist with development of their Tactics, Techniques & Procedures (TTPs) relating to the successful recognition, demodulation, decoding & reporting of V/UHF FM Push-To-Talk Clear-Speech emissions, which also carried 'Continuous Tone Coded Squelch System' (CTCSS) sub-audio tones. CTCSS signals are over 60 years old, but remain in use by a wide range of civilian, military and paramilitary organisations. As these signal-types can be ambiguous and tricky to identify using legacy means, the new go2signals user-group were not taking full advantage of their intercepted traffic. With prior knowledge of such CTCSS emissions, complemented by the state-of-the-art software, PROCITEC enabled the user-group to rapidly develop related TTPs to satisfy their intelligence and reporting requirements. Through these and similar initiatives, the firm continues to accumulate a wide range of success stories relating to various customers' operational needs and its solutions to them.

In enhancing the end-user operational requirements for wireless signal analysis, PROCITEC is supported by ex-military personnel who have used similar signal analysis software in the field for electronic warfare missions, in Africa, in Afghanistan. The ex-military personnel – with their on-field expertise – partner with the firm's highly skilled development staff and act as a link between the end-user demands and developer ideas, allowing the software to be developed by end-users for end-users. AD



Jens Heyen