

Kestrel TSCM[®] Professional Software

60 GHz | Emerging TSCM Threat

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Technical Research and Standards Group

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Threat Technology | Update

The spectrum use and allocation of the V-Band at 60 GHz, dates back to 2001, when the FCC in the United States of America set regulation in place for unlicensed operations across the 57 GHz to 64 GHz spectrum, for commercial and public use. This spectrum space has been a source of great concern for professional TSCM operators, given the high cost of equipment resources required to properly analyze the band, given the growing number of consumer and commercial technologies utilizing the V-Band, during the past decade. This edition of the TSCM Newsletter provides background on the V-Band, and the implications of this technology space relative to Technical Surveillance Countermeasures (TSCM).

As noted in the December 2017 newsletter.

“Professional Development TSCM Group Inc., is pleased to announce additional 2018 training dates at our recently commissioned Red Deer Training Centre (RDTC), located in the heart of Alberta Canada, on a scenic 160 acre site. Our Technical Security Specialist (TSS), designate certification, and other related training programs will continue to be available at our long-standing Resident Training Centre (RTC), located in Cornwall Ontario. Our new facility is equipped with a shielded RF and software development and testing lab, and an on-site classroom for dedicated law-enforcement, government security apparatus, and military participants. Certified Technical Operator (CTO)[™] training and certification for the Kestrel TSCM[®] Professional Software, and Technical Analyst Certification (TAC)[™] program, are available at our secure Alberta facility”.

Emerging V-Band Technology

In 2001 the FCC allocated 7 GHz of the 57 GHz to 66 GHz band for unlicensed use in the United States. This decision to free up a large amount of continuous spectrum, opened up commercial opportunities for the millimeter wave band, and enhanced the availability of spectrum, for use in developing broadband applications.

The FCC initially specified the maximum power level of +40 dBm, decibels milliwatts (in respect to) isotropic, but later in 2013 extended the EIRP for outdoor use between fixed points, to +82 dBm, relative to antenna gain, with the limit being +51dBi with trade-off between antenna gain and power level.

In Canada, the 60 GHz space is harmonized with the existing US regulations.

In Australia the space allocated, is limited to 59 GHz to 63 GHz, for unlicensed outdoor point-to-point applications, and the EIRP is limited to 150 watts (51.7 dBi).

In Europe, the space is 57 GHz to 66 GHz with a maximum EIRP of +55 dBm, but typically limits power to +10 dBm with a maximum antenna gain of +30 dBi.

The United Kingdom is aligned with the existing European standard with a maximum EIRP of +55 dBm, and also limits the power to +10 dBm, with a maximum antenna gain of +30 dBi, however the band allocation is 57 GHz to 64 GHz as per OFCOM regulation.

Although, the 60 GHz band is open for unlicensed operation worldwide, there is a wide variance in national regulation, that must be understood and considered from country to country.

Modulation | Characterization

The first generation use of this space included basic modulation schemes including BPSK and BFSK.

The second generation modulation schemes have seen a transition to QPSK combined with ACM, referred to as Adaptive Coding and Modulation technology.

Broadband Applications

The promised broadband applications are now a reality as and IEEE 802.11ad standard, bringing the 60 GHz band allocation, into the mix of existing (but saturated) 2.4 GHz and 5 GHz technology. The roll-out of 60 GHz technology, is well underway, with a number of industry players launching mixed technology products.

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“Bringing Change the TSCM Industry Since 2009”

Professional Development TSCM Group Inc.

Technical Security Branch (TSB)

Emerging Threat Technology | V-Band (60 GHz)

The advantages realized, include extremely high data transfer rates with the available increased bandwidth and security, is making the 60 GHz band, an ideal technology for economic-espionage, in a space that the vast majority of technical operators are unable to see, without a significant financial investment in professional level spectrum analyzers that provide coverage beyond the 60 GHz band, only to bring the realization of the next emerging technology of 75 GHz, and beyond.

There are currently, a growing number of 60 GHz consumer products that allow the transmission of high-definition (HDMI) video and digital audio sub-channels, and these remain virtually impossible to detect from an RF perspective, should these devices be professionally installed as a Technical Surveillance Device (TSD).

The modification of consumer and commercial products, is an easy task, converting them to powerful surveillance devices, and the unique signal characteristics in combination with a professional installation, are an on-going concern.

Kestrel TSCM[®] Professional Software | Update

As we blast into 2018, the future of tomorrows software—today, continues to generate a strong following worldwide.

2017 was a banner year in development history, with new powerful features that have tipped the scales in Kestrel[®] being the go to resource for professional TSCM applications, with the introduction of new SIGINT tools.

Our ability to sweep in an IF Broadband (IFB) mode for the entire range of the connected receiver, from 240 kHz to 160 MHz, is unprecedented. We introduced Time Differential Signal Analysis (TDSA)[™], to enhance the detection of power agile devices, moving a little farther away, from a location based historical peak data review.

TDSA[™] is a real-time and post analytical tool developed for a modern moving target threat model, that allows the operator to define the analytical time period filter, across the deployment cycle.

RDSA[™] is the ability to view the real-time, peak, and average spectra, from unique, multiple operator defined locations across any number of bands, on any number of unique locations, such as inside and outside, floor to floor, room to room, etc.

Kestrel TSCM[®] Professional Software | Innovation Delivered!

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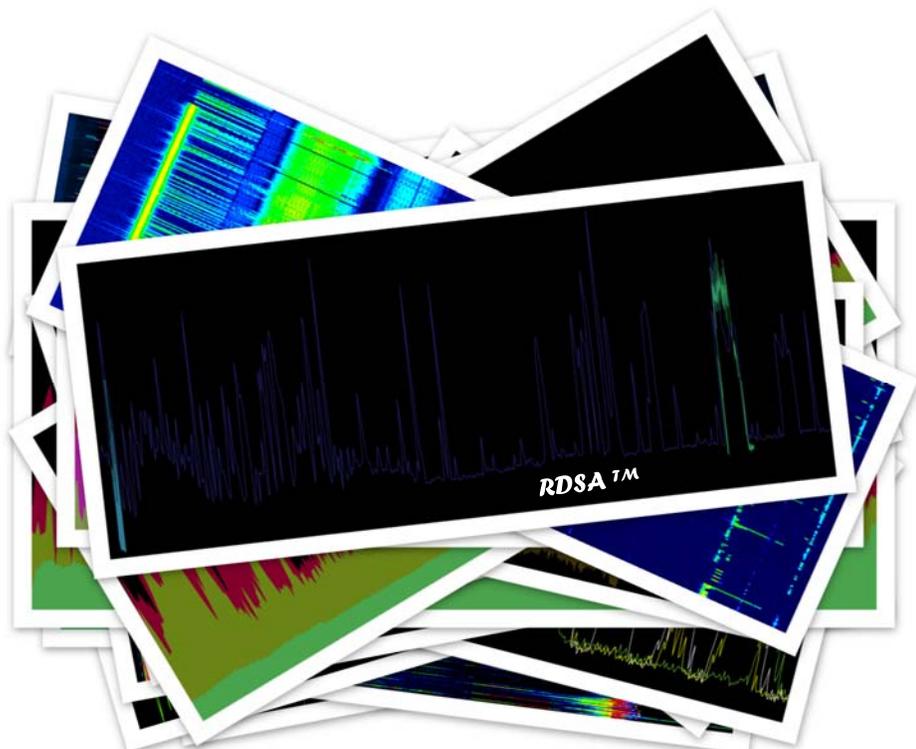
Powerful, Safe, and Cost Effective Solution for TSCM, SIGINT, and RSSM[™] Requirements

Kestrel Support Profile (KSP)[™] for the Signal Hound BB60C (9kHz to 6 GHz) and SM200A (100 kHz to 20 GHz), and other leading SDR hardware

Ask About Our Certified Technical Operator (CTO)[™] Training

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If you are not yet using the Kestrel TSCM[®] Professional Software, the real question is why not? Give us a call, we would like to hear from you!



Kestrel TSCM[®] Professional Software is innovative industry leading, disruptive technology, now sold in 29 countries worldwide.