

Kestrel TSCM[®] Professional Software



Key Features and Operational Advantages

Innovation is Simply the Beginning

Kestrel TSCM[®] Professional Software

Kestrel[®] has a keen eye, and sees the spectrum as the spectrum should be seen, without clever calibration tricks, averaging tables or artificial enhancements that can hide, or make some spectral events difficult to identify.

Professional technical operators can gain a false sense of security and unfounded confidence, when the spectrum is artificially enhanced, to look its so-called best.

It is for this reason that many technical operators, have in the past, relied on lab quality spectrum analyzers rather than TSCM specific products.

Kestrel[®] provides the technical operator with spectra that can be relied upon, so that definitive decisions can be made as to the presence of potentially hostile signal events.

Kestrel[®] sees all, and so does the technical operator by extension!

It is essential that the technical operator see the raw spectrum in today's modern moving target threat model, as many signal types are evasive and difficult to capture, let alone observe in an artificial runtime environment.

Single box solutions typically provide only one dimension of SDR capability.

The component based Kestrel[®] TSCM Professional Software on the other hand, allows the technical operator to employ mission critical hardware from multiple manufacturer's that are deployment requirement specific, and provide scalable options, as requirements change.

There are many considerations in the decision to purchase TSCM equipment resources, and we feel the choices are clear, and therefore we strongly recommend educating yourself on the following considerations, before purchasing any equipment resource.

1 | Cost Vs Revenue Return

Each purchase takes a given period of time to see a financial return. This can literally be years. The ratio of any product to pay for itself before becoming obsolete, is a critical factor.

The ability to generate new and reoccurring revenue streams is an important consideration.

Typical modified spectrum analyzers simply cannot support new and recurring revenue, and are often close to being obsolete shortly after official release into the marketplace.

Component based systems allow the technical operator to upgrade individual components as required to take advantage of the latest hardware, software, and computing technology.

2 | Cost Vs Usable Life Span

This is also referred to as the obsolescence factor.

Equipment resources that do not interact fully with multiple receiver deployment, via a fully integrated host computer, are typically of limited value in today's complex RF spectrum environment.

The ability to generate new and recurring revenue streams is limited, and the Probability of Detection (POD) is significantly impaired, when field deployment options are limited.

3 | Cost Vs Equipping the Entire Team

The cost of single box solutions for even a moderately sized team can be daunting.

The ability to equip the entire team with a low-cost component based resources, sees the advantage of redundancy by design, mission scalability, deployment flexibility, and as a result, significantly enhances operator confidence and proficiency.

4 | Capabilities Vs Limitations

A careful review of the various equipment resources being considered for purchase, is essential.

This is based on the premise that each equipment resource will have particular design capabilities, and all will have specific limitations that need to be understood and considered.

Maximum value is achieved when key features support reoccurring revenue streams.

5 | Features Vs Cost of Ownership

At the end of the day, it is the key feature that bring value to the chosen equipment resource.

However, without significant new development, resulting in the release of new and powerful innovation, such resources are of limited value long term.

Often this will be influenced by the technical operator's experience level, and anticipated deployment requirements.

It is essential to look for modern features that are designed to tackle the complex spectrum environment in keeping with a rapidly changing threat environment.

The following table represents the Kestrel TSCM[®] Professional Software key features, against any chosen competitive product you wish to compare:

Key Features and Operational Advantages

Kestrel TSCM [®] Professional Software Signals Intelligence Support System	Description Key Features and Functionality	Competitive Product Comparative
Key Features and Operational Advantages of the Kestrel TSCM [®] Professional Software	<p>We are often asked of compare Kestrel[®] to a range of other competitive products.</p> <p>Such a comparative is generally not possible given the wide range of system design criteria, undeclared specifications, computing hardware, receiver and software capability.</p> <p>Kestrel[®] continues to stand on its own merits, and our goal and responsibility is to provide detailed information about Kestrel[®], so that the end-user can make an informed procurement decision.</p> <p>We are always here to assist with any questions or concerns about our software.</p> <p>PDTG Inc., is committed to the development of the most innovative, focused TSCM specific, professional software available.</p>	
100% Canadian Innovation Software Developed in Canada	<p>Strong commitment and an exceptional track record, with the first software release in early 2009.</p> <p>Our extensive field experience is your power!</p> <p>Unprecedented innovation with significant new deployment tools and methodology.</p> <p>Innovation is our design methodology.</p> <p>Industry leading, operator centric and TSCM specific Software Defined Radio (SDR).</p> <p>Strong Engineering and Software Development Group (SDG).</p> <p>Global industry disruptive technology Delivered!</p>	
Operator Centric Engineered by Experience!	<p>Kestrel[®] places the technical operator back in control of the mission, and the analytical process.</p> <p>Full featured Technical Surveillance Countermeasures (TSCM) specific, standards based SDR application.</p> <p>Included features and advanced functionality extend well beyond the typical industry spectrum analyzer.</p> <p>Each software feature is carefully developed, coded and evaluated to meet strict operator centric criteria.</p> <p>Software design, is firmly engineered on standards based, real-world deployment methodology, founded on the experience of our principals during the past 38 years.</p>	

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Award Winning 2013 Best New TSCM Product	<p>2015 Canadian Technical Security Conference (CTSC) Software Defined Radio (SDR) Innovation</p> <p>2014 Canadian Technical Security Conference (CTSC) Software Defined Radio (SDR) Innovation</p> <p>2013 Espionage Research Institute International (ERII) Glen H. Whidden Award for Best New TSCM Product</p> <p>2013 Canadian Technical Security Conference (CTSC) Software Defined Radio (SDR) Innovation</p> <p>2012 Canadian Technical Security Conference (CTSC) Industry Design and Innovation</p>	
Worldwide Distribution Partners Sales in 28 Countries	<p>Strategic (non-exclusive) authorized distribution partners located worldwide, to facilitate commercial and government procurement requirements.</p> <p>Code development, centralized licensing and technical support delivery, remains firmly in Canada.</p> <p>Proprietary source code is tightly controlled in Canada, with no foreign sub-contracting of the software engineering, or development process permitted.</p> <p>International distribution network is ideal for government security apparatus who require in-country procurement options, and a trusted partner for technical support at the software development level.</p> <p>Kestrel is always a work in progress!</p>	
Canadian Based Technical Support Group (TSG)	<p>The most important aspect of software based resources, is the type and level of technical support.</p> <p>Technical support is delivered by our Technical Support Group (TSG), consisting of Canadian based, experienced technical operators and software engineers.</p> <p>Technical support is delivered via email and Remote Desktop Software (RDS).</p> <p>Level I support is provided by a qualified Technical Security Specialist (TSS), for most support issues and may be elevated to Level II support, if required.</p> <p>Level II support involves our software engineering group, lead developer, as required.</p> <p>There is no charge for our standard email or TeamViewer based technical support delivery.</p>	

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Simplified Software Licensing	<p>A single full software license is considered permanent across two (2) computers.</p> <p>No annual maintenance, or upgrade fees within the same software generation.</p> <p>Software licensing supports, Dual Receiver Operation (DRO) at the time of purchase, or as deployment needs and requirements change. This capability provides a scalable, budget friendly TSCM platform.</p> <p>Updates, bug fixes, new features and enhanced functionality are always provided free of charge.</p> <p>Future (optional) software modules, and generational software releases, may require an upgrade fee.</p> <p>Anticipated in 3 to 5 year intervals.</p>	
Custom Software Features New Functionality Ready!	<p>Our Software Development Group (SDG) can design, develop, and seamlessly implement custom end-user features and functionality.</p> <p>Our quickest turn-around for a request for a new feature by a government entity, was just 12 hours, allowing the feature to be deployed the following day.</p> <p>Our experienced design, engineering, and Software Development Group (SDG) is operator focused.</p> <p>End-user input, ideas for new features, and improved functionality, is strongly encouraged and welcomed.</p> <p>Operators have been complaining for years about the lack of TSCM specific features across industry manufacturers, now you have a voice!</p> <p>Perhaps you will see your idea in the next major software release?</p>	
Lower Cost of Ownership Cost Matters!	<p>Lower overall cost of ownership.</p> <p>Flexibility, scalability, upgradability is all easily managed in a budget friendly procurement process.</p> <p>Future component upgrades can be better managed as deployment requirements and developing threat technology changes.</p> <p>Software and Firmware are easily updated to strengthen and extend the anticipated life cycle of the system.</p> <p>Equip the team with individual (portable) Rapid Deployment Kits (RDK).</p> <p>This is not typically possible with expensive single box solutions.</p>	

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Budget Friendly Platform Professional Features Matter!	<p>All field team members can be equipped with a dedicated, (portable) RF Rapid Development kit (RDK).</p> <p>Promotes greater efficiency and operator situational awareness.</p> <p>Significantly increase the Probability of Detection (POD) when on-demand field ready deployment is possible.</p> <p>Promotes operator familiarization and field effectiveness in deploying and detecting RF threats.</p> <p>Cost aside, it is the innovative features and functionality that brings real value to ownership, of the Kestrel TSCM[®] Professional Software.</p>	
Mission Agnostic <i>Technical Surveillance Countermeasures (TSCM)</i> <i>Remote Spectrum Surveillance and Monitoring (RSSM)</i>	<p>Field deployment ready for virtually any TSCM or Remote Spectrum Surveillance and Monitoring (RSSM) application.</p> <p>Support for a wide range of SDR hardware options to meet or exceed the intended end-user, mission requirements.</p> <p>Convertible industry disruptive technology adapts instantly to changing mission parameters and requirements in the field.</p> <p>Technical, analytical and tactical requirements associated with TSCM, RSSM, and SIGINT deployment, requires flexibility, versatility, and scalability as an inherent property.</p>	
Future Proof Architecture	<p>SDR hardware, host computer platform and antenna technology are all field upgradable, as mission requirements change.</p> <p>Kestrel can take on many different deployment roles on-the-fly, maximizing deployment efficiency with less resources during travel.</p> <p>Cyclic upgrade budgeting is easy, as there is no requirement to replace the entire system over time.</p> <p>Software Defined Radio (SDR) is easily upgraded to include the latest application level tools and resources.</p> <p>SDR technology is obsolescence proof, extending the life cycle indefinitely, by replacement or upgrade of hardware, firmware, and software components, only as required.</p>	

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Field Serviceability System Redundancy	<p>Swapping out component level hardware is fully supported, and considered a major benefit over single box resources.</p> <p>Oftentimes, it will not be required to return what might be a single primary resource to the manufacturer for service.</p> <p>Software Defined Radio (SDR) hardware is reliable and robust.</p> <p>Professional technical operators understand the value of the Kestrel TSCM[®] Professional Software concept, and definitive advantages.</p> <p>Lower ownership cost, promotes the ability to maintain multiple, secondary, or backup system components, for multi-tasking field deployment.</p>	
Scalable Solution Versatility by Design	<p>Start small, or start big, based on budgetary and anticipated field deployment requirements.</p> <p>Maintain building block components for maximum deployment versatility and scalability.</p> <p>Build redundancy, and Fail-Safe operation at the system level.</p> <p>Generate new sustainable revenue streams by adding additional professional services that are fully scalable, and cost effective for the end-user.</p> <p>Significantly improve Probability of Intercept (POI) and Probability of Detection (POD).</p> <p>Deploy across multiple clients for true multi-tasking capability.</p>	
Host Computer Versatility	<p>The SDR concept takes advantage of the latest COTS computing hardware.</p> <p>Desktop, Laptop, Tablet, and Microcomputer ready to meet specific deployment requirements. Provides the ability to upgrade as new and more powerful computing technology becomes available minimizing redundancy.</p> <p>Can be installed on a backup computing platform for fail-safe redundancy, and to facilitate the analytical cycle, and for post collection report generation.</p>	
Computer Upgradable Future Proof	<p>Upgrade, replace and customize the host computer hardware at any time.</p> <p>The host computer doubles as field deployment mobile office as a multi-mission and multi-tasking resource.</p> <p>One host computing platform supports a variety of mission requirements, which allows for greater efficiency during travel, and difficult mission deployment.</p> <p>Maximizes the operational life-cycle of the entire system.</p>	

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Receiver Upgradable Future Proof	<p>The receiver or spectrum analyzer is the heart of the systems capability, enhanced only by the capabilities of the software.</p> <p>You are never stuck with obsolete hardware, and can simply upgrade, or add the latest SDR hardware, and utilize older receivers as backup resources or additional deployment tools.</p> <p>Older hardware make excellent resources for demodulation and Dual Receiver Operation (DRO) requirements.</p> <p>Upgrade, replace, or change the receiver or spectrum analyzer as mission requirements change.</p>	
USB 2.0 USB 3.0 Fiber-Optic LAN Remote	<p>Direct host computer connectivity and wide range of optional hardware based, remote media conversion modules, allows for flexibility for unique deployment applications.</p> <p>Support for USB 2.0 connectivity powered by the host computer.</p> <p>Support for USB 3.0 connectivity powered by the host computer.</p> <p>USB 3.0 to 100 Meters of 50 / 125 Multi-Mode Fiber-Optic Photonic Cable.</p> <p>USB 2.0 to 100 Meters of CAT 5e / Cat 6e LAN Cable.</p> <p>USB 2.0 to 100 Meters of 50 / 125 Multi-Mode Fiber-Optic Photonic Cable.</p> <p>USB C via powered hardware convertor to USB 3.0 port configuration.</p>	
Powerful User Interface (UI)	<p>Our intuitive, user-friendly, work-flow based, operator centric UI places all essential and commonly accessed display and control groups up-front.</p> <p>Essential status display options and interactive informational displays, enhances operator situational awareness.</p> <p>Dynamic control linking, the use of Artificial Intelligence (AI) and predictive logic, all optimize runtime settings, that remain under full operator control, during runtime collection, analysis and review.</p> <p>The operator can setup, navigate, view and analyze, multiple instances of independent spectrum and waterfall data in familiar tabbed windows.</p> <p>Multiple instances of the application can be opened for the purpose of analysis and report generation.</p>	

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Global Positional System (GPS) Ready	<p>There is support for externally connected, generic USB 2.0 GPS receiver integration.</p> <p>Automatically capture GPS coordinates to provide precise positional data, utilized to resolve collection runtime collection antenna locations.</p> <p>Provides advanced RF capability for mobile Search and Rescue (SAR), Interference Analysis (IA), and Spectrum Regulatory assignments.</p> <p>Provision for the manual entry of geographical coordinates in the event a GPS signal, is not available.</p>	
Multi-Tasking Capability Means Mission Flexibility!	<p>Designed to meet or exceed Commercial, Government, and Military, Technical Security (TSEC) requirements worldwide.</p> <p>Supports, mission based Signals Intelligence (SIGINT), Technical Surveillance Countermeasures (TSCM), and Remote Spectrum Surveillance and Monitoring (RSSM) TM assignments.</p> <p>Kestrel is an ideal tactical platform for mobile applications, such as our Mobile Monitoring and Analysis Platform (MMAP) built around the Ford Explorer.</p>	
Virtual Reality Floor Plan Mapping Import	<p>Import architectural floor plates, 3D renderings, facility riser plots, facility site plans, geographical area maps, and virtual reality photographs.</p> <p>Drag-and-Drop antenna collection locations during Differential Signal Analysis (DSA) TM as positional ICONS onto any imported image.</p> <p>Default location block pallet with calibration grid, when no floor plan, map or image is available.</p> <p>Simply use the provided block pallet space to overlay DSA location ICON references.</p>	
Kestrel Project Templates (KPT)	<p>Runtime deployment is easy with our custom project template builder and editor.</p> <p>The technical operator can create, edit and store any number of project templates, or even save the current project as a template.</p> <p>The ability to reuse complex templates significantly simplifies the initial setup and initialization process.</p> <p>The master KPT database file can be removed to sanitize the application, or the file can be moved to another operational host computer.</p>	

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IQ Record IQ Playback Loop IQ IQ Conversion Utility	<p>IQ capability is the backbone of both analog and digital signal analysis capability.</p> <p>IQ Record and Playback is supported as a proprietary KIQ (binary) file, or a standard CSV IQ format.</p> <p>Continuous IQ loop capability for extended signal analysis of short duration burst signals.</p> <p>IQ Conversion Utility easily converts standard (CSV) IQ files to our proprietary Kestrel IQ (KIQ) file format.</p> <p>Multiple IQ formats supported, including KIQ, CSV, and WAV.</p>	
IQ Import and IQ Export	<p>KIQ, CSV, and WAV Export of IQ Data.</p> <p>KIQ, CSV, and Import of IQ Data.</p> <p>Support for CSV, WAV IQ to KIQ (binary) file conversion.</p> <p>Support for wideband capture and selective playback and analysis of IQ Data.</p> <p>IQ data files may be rendered for playback analysis, without interrupting the runtime collection of spectra.</p> <p>No receiver or analyzer required for playback of historical IQ sample files.</p> <p>Captured (CSV) IQ data can be imported into an Arbitrary Vector Signal Generator (VSG), allowing for real-time training scenarios at the signal analysis level.</p>	
Colour Coded Automatic Threat Lists (ATL)	<p>Unique, colourful Automatic Threat Lists (ATL) bring clarity to complex data relationships.</p> <p>Support for manual entry of operator defined Signals of Interest (SOI).</p> <p>Innovative Signal Combining Technology (SCT) TM simplifies the analytical process and minimized threat list clutter.</p> <p>Ability to customize ATL data table elements for display purposes.</p> <p>Support for CSV export of all ATL table data for use in reports and analytical processes.</p>	
Integrated Signal Profile Database	<p>Integrated Signal Profile Database (SPD), enhances situational awareness.</p> <p>Identifies and provides hierarchy of fundamental Vs Harmonic associations.</p> <p>SPD aids in the review and analysis process.</p> <p>Individual signal profiles can be rendered to the Session Report Generator (SRG), via cut and past, or included as ATL tables at the report level.</p>	

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Dual Receiver Ready Multiple Receiver Hand-Off Capability	<p>A standard software licence is Dual Receiver Operation (DRO) ready, connect any two (2) supported Rx on a signal software licence.</p> <p>Hand-Off the Spectrum and Demodulation process across any supported and licensed receiver, or analyzer instantly.</p> <p>Seamless multiple receiver Hand-Off with real-time automatic Rx synchronization means no data loss or interruption during runtime.</p> <p>Operator programmability permits each Rx to be assigned independent mission parameters and restrictions, including the sweep, demodulation and analysis process.</p>	
Multiple Band Capability Tabbed Windows	<p>Innovative colour coded Spectra band tabs promote exceptional operator situational awareness.</p> <p>Quickly, identify the status of each band and receiver at the glance.</p> <p>Support for any number of independently controlled, tabbed Spectra windows.</p> <p>Support for any number of Spectra bands, across multiple receivers and analyzers.</p>	
Support for 7 Receiver Manufacturers Support for 25 Industry Significant and Analyzer Receiver Models	<p>Kestrel Support Profiles (KSP)[™] for Anritsu, CRFS, Rhode & Schwarz, Shearwater, Signal Hound, Tektronix, ThinkRF, and Berkeley Nucleonics.</p> <p>Future ready architecture support for the next generation of SDR receivers and spectrum analyzers.</p> <p>End-user SDR receiver hardware support architecture to 325 GHz.</p>	
Current Receiver Support 1 Hz to 43 GHz	<p>Support for 3.5 GHz, 4.4 GHz, 6 GHz, 6.2 GHz, 7.5 GHz, 8 GHz, 9 GHz, 12.4 GHz, 13 GHz, 18 GHz, 20 GHz, 27 GHz, 30 GHz, 32 GHz, and 43 GHz.</p> <p>Additional Kestrel Support Profiles (KSP)[™] are currently under Development.</p> <p>Support for entry level, intermediate and advanced professional level hardware options.</p> <p>Ability to support customer specified SDR hardware via a Kestrel Support Profile (KSP)[™].</p>	
Powerline Carrier (PLC) Broadband Powerline (BPL)	<p>Software profile for PLC and BPL unintentional radiator verification.</p> <p>Third-Party hardware support for (PLC BPL) signal detection and characterization.</p> <p>Advanced hardware sensors and probes are currently under-development to accommodate additional testing protocols.</p> <p>Power Line Carrier (PLC) and Broadband Power Line (BPL) analysis supported.</p>	

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Analog Demodulation and FFT Visualizer	<p>Demodulated signal analytics ready, for AM, FM, and SSB (USB LSB) modes.</p> <p>Additional analog and digital demodulators are currently under development.</p> <p>Sophisticated signal level FFT Visualization of the RF Spectrum, Audio Spectral Density (ASD), IQ Diagram, IQ Vs Time, RSSI History, Analog RSSI + RSSI Trending, Audio Oscilloscope, AF Spectrum, and NTSC Video</p> <p>Multiple channel audio overlay with RSSI Tone Locator (RTL) feature for enhanced signal localization.</p> <p>AF Filters, IQ Recording and Playback, IQ Playback loop support.</p> <p>Audio sample capture and storage, utilizing the Kestrel Wave Recorder (KWR)[™].</p>	
Digital Demodulation and Protocol Analysis	<p>Pending official release effective with v1.35xx and 1.36xx code.</p> <p>Additional new demodulators, including both Analog and Digital formats.</p> <p>NTSC video demodulation, and visualization rendering.</p> <p>Demodulation and FFT visualization of key digital modulation modes.</p> <p>Common protocol analysis for key modulation types and formats.</p> <p>Standard included COTS digital demodulation for commercial TSCM technical operators.</p> <p>Advanced digital demodulation and protocol analysis for authorized end-users, including government, law-enforcement, military, and regulatory entities.</p>	
Minimum Detection Amplitude (MDA)	<p>Establishes an operator defined threshold for automatic threat detection.</p> <p>Automatically captures continuous and periodic signal events that exceed the operator threshold.</p> <p>Absolute and Relative modes provide flexibility for narrow bandwidth and wide bandwidth Range of Interest (ROI) runtime collection.</p> <p>Generates an Automatic Threat List (ATL) of all signal events that exceed operator threshold. Unique graphical signal level overlay to quickly visualize, and provide reference to the ATL data.</p>	

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Chirp Threat Mode (CTM) Threat Detection Algorithm (TDA)	<p>Positively detects, flags and characterizes analog audio transmitters within the defined target area.</p> <p>Flags potentially hostile analog signal events containing room audio, for further operator analysis.</p> <p>Colour coded CTM events are flagged for exceptional clarity.</p>	
Harmonic Signature Threshold (HST)	<p>Positively identifies and flags harmonic events against CTM confirmed hits.</p> <p>Automatic Threat List (ATL) classification of harmonic events.</p> <p>Colour coded harmonic events, are flagged for exceptional clarity.</p>	
Spectrum Baseline Logging (SBL)	<p>Establishes an operator defined threshold for detection and capture of the baseline ambient RF spectrum.</p> <p>Automatically captures continuous and periodic signal events that exceed operator thresholds.</p> <p>Generates an Automatic Threat List (ATL) of all signal events that exceed operator threshold.</p> <p>Colour coded SBL events, are flagged for exceptional clarity.</p> <p>Support for individual DSA location based, SBL reference Automatic Threat List (ATL) defined by location.</p>	
Differential Signal Analysis (DSA) Import Compare Bands	<p>DSA is a powerful feature that allows unlimited real-time and post collection comparative analysis of location based spectra and waterfall trace data.</p> <p>The technical operator can import comparative spectrum trace data from any previously captured historical Kestrel Project File (KPF).</p> <p>Echo DSA is also supported permitting real-time differential detection across the entire runtime Range of Interest (ROI) against any previously captured historical trace displayed.</p> <p>Live View Analysis (LVA) and all navigation controls remain available.</p>	
Live View Analysis (LVA)	<p>Support for real-time Signal of Interest (SOI) analysis, without interrupting the runtime collection process.</p> <p>Open and navigate historical files for playback of Spectra and Waterfall data during post review and analysis.</p> <p>All Positional Zoom Control (PZC), Horizontal Range Control (HRC) and spectrum display features are available during a live runtime environment, and during post event analysis.</p>	

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Live View DSA (LVD) Real-Time (Echo) DSA	<p>Display the current live collection location against one or more historical location based traces without interruption of the runtime collection process.</p> <p>Unique echo mode permits Live View DSA (LVD)[™] to display a real-time differential trace between the current location and any available historical trace data.</p> <p>Permits any historical trace to be run as a direct comparative against the current runtime trace location.</p>	
Automatic Export Control (AEC) OPT AEC	<p>Support for periodic export of MDA, SBL, CTM, HST, and DAA threat and signal list data, to standard table based CSV file format.</p> <p>Export all data on an operator defined activity schedule, or export only changes since the previous periodic export event.</p> <p>Triggered export of CSV based RSSI, Spectra, and IQ, including event pre/post buffer DAA Exceedance, DAA Loss, New MDA, New SBL, New CTM, and New HST.</p> <p>Operator defined CSV table level programming of any available data element.</p> <p>IQ Trigger permits the capture of IQ samples of any triggered signal event.</p> <p>IQ Trigger supports Dual Receiver Operation in our IF Broadband (IFB) mode up to the Rx IF Bandwidth.</p>	
Remote Spectrum Surveillance and Monitoring (RSSM)	<p>Ready to deploy on-the-fly in a TSCM or RSSM role.</p> <p>Remote Network access via LAN, DSL, and 3G / 4G / LTE Modem.</p> <p>Secure RSSM Command and Control Management via TeamViewer, or other suitable third-party Remote Desktop Software (RDS).</p> <p>Setup, Programming, Remote Reboot, Signal Level Review, Analysis, Characterization and Classification, all via a Network Connection.</p> <p>Unattended collection for days, weeks, or months, utilizing our unique write compression capability.</p> <p>Analysis is easily accomplished via a network connection and Remote Desktop Software (RDS).</p>	

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Advanced Signal Intelligence Database (ASID) FCC and IC TAFL	<p>FCC and IC TAFL (SMS) Frequency Licensing Databases included as a standard feature. FDB overlay displays Free Space Power (FSP), as well as the Bearing To / From Station.</p> <p>Search criteria filters for Free Space Power (FSP), and geographical area coordinates in Nautical miles, or both.</p> <p>Supports triangulation based on RSSI Rx DSA locations, selectable at the signal level within the FDB window.</p> <p>Mapping visualization support for Google Maps, Google Satellite and Street View.</p> <p>Static image positional orientation overview reference map image generator.</p> <p>FDB updates for FCC and TAFL databases is available for operator download.</p> <p>Selective FDB zoning across both FCC and IC SMS TAFL data to facilitate regional geographic boundaries, and Canada, United States of America, border regions.</p>	
Operator Signal List (OSL) Database	<p>Support for an unlimited number of operator defined and maintained, Operator Signal Lists (OSL)[™] at the application level.</p> <p>Ability to maintain any number of OSL databases at the facility level, for known hostile signals, known friendly signals, manufacturer specific frequency data.</p> <p>Display currently loaded OSL as a spectrum overlay to quickly identify matching signal events within the currently displayed spectra band.</p> <p>Individual OSL database files can be easily transported to another system, if required.</p> <p>The ability to hide or view the OSL graphical overlay is supported on the User-Interface (UI).</p>	
Channel Profile Masks (CPM)	<p>Allows official bands, sub-bands, and operator defined Range of Interest (ROI) allocations to display as a graphical overlay for easy identification.</p> <p>Band level and channel level programming is supported utilizing the CPM Editor.</p>	

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DSA Trace Limit (DTL) Activity Event Alarm	<p>The DSA Trace Limit (DTL) feature allows the technical operator to define the trace count for the current location.</p> <p>An activity event alarm will sound at the completion of the capture process, prompting the operator to move to the next DSA collection location.</p> <p>This allows the operator to tackle other tasks during the collection process.</p> <p>At the end of the defined trace count cycle, the software locks the current location and sounds the process event alarm.</p> <p>Support of voice annunciation is available.</p> <p>The operator can override the alarm and restart collection at the same location, or move to the next location.</p>	
Multiple Instances of Kestrel Software Runtime and Historical	<p>The ability to open a second or third instance of the software permits uninterrupted collection on the primary instance, and historical project analysis and review at the same time in additional instances of the application.</p> <p>It is possible to establish runtime collection, and complete analysis and report generation, within a second instance of software on the same host computer platform.</p>	
RSSI Time Locator (RTL) RSSI Trending Display	<p>RSSI based direction-finding is simplified at the Signal of Interest (SOI) level.</p> <p>Activate the amplitude based RSSI Locator Tone (RTL)[™] as a standalone walk-about direction-finder.</p> <p>Support for multiple channel audio supports the ability to monitor the Signal of Interest (SOI) audio and the RTL tone independently, or simultaneously.</p> <p>Utilize FFT Visualization to determine the RSSI levels of the signal source.</p> <p>Utilize the Analog RSSI Display (ARD) with RSSI signal level trending, in combination with the RSSI Tone (RTL)[™] feature.</p>	
Kestrel Wave Recorder (KWR)	<p>Record audio samples of both analog and digital Signals of Interest (SOI) during the demodulation process.</p> <p>Files are saved as a common WAV format for playback without the Kestrel[®] software.</p>	

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Kestrel TSCM [®] Professional Software Setup Wizard	<p>Establish a runtime environment with a highly-structured format that is export ready for report generation.</p> <p>Establish virtually all necessary programming parameters within a single Setup Wizard.</p> <p>Project Description</p> <p>GPS Coordinates</p> <p>Activity schedule</p> <p>Time Zone</p> <p>DSA Trace count limit</p> <p>Event Alarm</p> <p>Collection Duration</p> <p>Antenna Locations</p> <p>Spectrum Bands</p>	
Autonomous Measurement and Collection Sub-System (AMCS)	<p>Allows the application to operate “headless” in an embedded computing environment.</p> <p>Automatically configured from a Kestrel[®] Configuration Script (KCS) TM file.</p> <p>The Kestrel[®] application creates all the project files and necessary configuration, to be able to immediately begin runtime collection activity.</p> <p>Client applications may be connected to the Kestrel[®] software via a TCP/IP socket interface connection, to obtain the extracted data stream, and configuration information from the Kestrel[®] application.</p> <p>Limited control is also offered to client applications.</p>	
AMCS [™] KESTREL-NET[™] Actionable RF Intelligence	<p>KESTREL-NET[™] combines several key software features to advantage powerful live streaming of data across a TCP/IP network.</p> <p>KESTREL-NET[™] harnesses the power of the Autonomous Measurement and Collection Sub-System (AMCS)[™] across any network, to live stream remote site spectrum measurements in real-time.</p>	
Project Activity Scheduler	<p>The ability to precisely schedule multiple bands across multiple receivers totally independently, is fully supported.</p> <p>Create hardware independent start and stop cycles for individual bands across any receiver.</p> <p>Programmable Project Activity Scheduler event alarm.</p>	

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Sub-Harmonic and Harmonic Calculator	<p>Innovative Sub-Harmonic Calculator displays SOI harmonic relationships from 1 / H2 to 1 / H9.</p> <p>Provides unique threat detection opportunity below the fundamental frequency.</p> <p>Harmonic Calculator displays SOI harmonic relationships from H2 to H9 based on an operator defined fundamental frequency value.</p> <p>Support for Drag-and-Drop of any displayed table value to the User-Interface (UI) and Demodulator.</p>	
File Write Compression Management	<p>Supports real-time write-to-storage capability for fail-safe reliability.</p> <p>Write to Internal or External HDD.</p> <p>Write to Internal or External SSD.</p> <p>Powerful write compression algorithm for extended TSCM / RSSM deployment.</p> <p>Increases file management efficiency and results in a significantly smaller project file size footprint.</p> <p>Captures all spectra and waterfall peak data elements at the (1 / n=?) value and writes a single Kestrel Super Trace (KST).</p>	
Kestrel Super Trace (KST)	<p>The Kestrel Super Trace (KST) is a function of write compression.</p> <p>If (1/n=100) is defined by the operator, all of the peak data captured from the first 99 standard traces will be written to a single trace (100), defined as a Kestrel Super Trace (KST).</p> <p>All discrete peak trace data is captured and displayed during analysis as a single KST.</p> <p>Successive time stamps reflect the KST and therefore a minor displacement in event time accuracy, which varies with the (1/n=?) value progression, will occur.</p> <p>The result of (1/n=100) is a storage footprint 100 times smaller, bringing greater efficiency to the analytical process.</p>	
Triggered File Write Management ARM and REC	<p>Support for triggered capture of Signal of Interest (SOI) events.</p> <p>Results in capturing only critical SOI events for analytical analysis.</p> <p>Spectrum Analyzer (SA) only mode, when write to storage is not required.</p> <p>ARM is a triggered REC mode that records triggered DAA exceedance or loss during runtime for any number of active DAA alert zones.</p>	

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Dynamic Alert Annunciator (DAA)	<p>Real-time interactive PASS / FAIL spectrum event status monitoring display.</p> <p>Real-time unattended or operator assisted event status capture and alerting.</p> <p>Unlimited number of operator defined Alert Zones.</p> <p>Detect Loss and Exceedance events in real-time. Export DAA Threat / Signal List data to CSV file format.</p> <p>View event based statistical details at the signal level.</p> <p>DAA triggered IQ capture and recording.</p>	
Software Programming and Operation Manual (SPOM)	<p>Our SPOM documentation is one of the most thorough software technical manuals in the industry.</p> <p>SPOM is authored and maintained by technical operators for technical operators.</p> <p>Serves as not only an operational document, but rather a self-guided operational training manual.</p> <p>Quick deployment charts are available for essential field deployment tasks.</p>	
Session Report Generator (SRG)	<p>Innovative Session Report Generator, based on the TSB 2000 (Technical) Standard[™].</p> <p>Intuitive SRG interface, supports multiple reports, for reader specific parameters.</p> <p>Support for On-the-Fly session report generation. Output saves directly too an easy to handle PDF format.</p> <p>Import feature for target area photographs.</p> <p>Customizable report cover page logo.</p>	
File Management Fail-Safe Operation	<p>All captured spectra and waterfall trace data is written to the storage media in real-time, unless otherwise programmed by the operator.</p> <p>All single session runtime files are appended to a single Kestrel Project File (KPF) directory.</p>	
Powerful Positional Zoom Control (PZC)	<p>The most powerful spectrum navigation capability in the industry.</p> <p>Navigation is intuitive and operator centric.</p>	
Powerful Horizontal Range Control (HRC)	<p>Custom programmable HRC provides powerful display range control for precision analytical review.</p> <p>Innovative HRC database derived from the operator defined Spectrum Profile File (SPF) database.</p> <p>Precise on-the-fly navigation and display of specific allocation bands or frequency ranges without the need to set the start and stop frequencies manually.</p>	

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NTSC Video Demodulation Sub-Carrier Audio (SCA)	<p>Video demodulation provides a check and balance method of positively identifying wireless video transmissions detected during a sweep, or signals suspected to contain video content.</p> <p>Supports the ability to demodulate Power Line Carrier (PLC) video senders.</p> <p>Enhanced Audio Oscilloscope Display (OSD) filtering and control capability in support of the video demodulation process.</p>	
Tactical Self-Destruct (TSD) OPT TSD	<p>For active deployment in potentially hostile environments, the Kestrel TSCM[®] Professional Software includes a multiple threat level Tactical Self-Destruct (TSD) capability.</p> <p>Level I Removes the Activation Security Key (ASK), the application, and all historical and current runtime data.</p> <p>Level II Removes the Activation Security Key (ASK), and the application.</p> <p>Level III Removes the Activation Security Key (ASK) only.</p> <p>The ability to remotely initiate the TSD feature is supported with remote network connectivity.</p>	
IF Broadband (IFB) [™]	<p>IFB[™] allow a runtime session to be established up to the maximum hardware IF bandwidth.</p> <p>Current support is receiver dependent from 240 kHz to 160 MHz.</p> <p>IFB permits operation in a modified zero-span demodulation mode, supporting Triggered IQ pre-event buffering.</p>	