

“Tap Capture Plot (TCP)[™] | The Importance of Power Line (PL) Energy Heat Mapping—Part III

July 2020 | Issue 61

Technical Research and Standards Group

Paul D Turner, TSS TSI

Understanding Power Line (PL) Analytics—Part III

Setting up the software to deploy the | TCP[™] | feature is the next step in the process. Access the Setup Wizard | FILE | NEW PROJECT | NO TEMPLATE | and provide a project description to include a | Project Name | and | Operator Reference |. Confirm that the | TCP OPERATION | check box is enabled and then press the | CREATE NEW PROJECT | button.



On the main menu user-interface, select | LOCATION | FLOOR PLAN TCP DTAP (if licenced) | menu option.

Please note that the | TCP[™] | and / or | DTAP-GPS[™] | are separate optional software modules that require additional | Activation Security Keys (ASK)[™] | and as such, | OPT TCP[™] | must be licensed on the target system to utilize this capability.

Next, select the | TCP[™] Settings | button and in the | Auto Sample (TCP) Configuration | dialog window, select the | SDR Hardware | RBW (1.2 kHz) | and select the | Spectrum Range as (9 kHz to 30 MHz) |, or other desired Range of Interest (ROI).

Setting a write compression (decimation) is not generally required given the small number of sampling traces that need to be captured at each Power Line (PL) appearance point.

Set the trace limit to the desired number of traces by typing the number of traces into the | Limit | text input box (250 is a good number), or select another value from the drop-down list.

If more traces are deemed necessary, say 500 traces, the write compression can be set at < 2 > reducing the overall storage foot print of the project file.

The result will be 250 | Kestrel Super Traces (KST) | written to storage as part of the LDSA[™] profile that automatically renders as part of the Tap Capture Plot (TCP)[™] process for geo-location heat mapping.

Press the | SAVE | button and select the | NEW FLOOR PLAN | button and provide a descriptive name for the floor plan.

Multiple | TCP[™] | floor plans are supported to provide scalability and versatility in deployment zoning of mission critical data. The ability to import multiple floor plan images to deploy against multiple floors, or facility sections is supported.

Select | IMAGE | and navigate to a suitable floor plan.

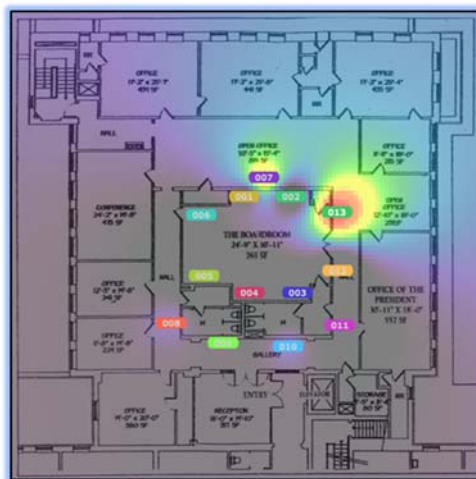
Position yourself at the first appearance point to be tested, connect the 3DEP-10 to an electrical outlet and as precisely as possible find the location on the floor plan, left mouse click at the desired location and select | Place Auto Location ‘TCP-001’ |, where ‘TCP’ is the floor plan name assigned and ‘001’ references the first Power Line (PL) appearance point location.

Right click on the | 001 | ICON and select | Auto Sample | and then simply repeat the process at each identified and accessible appearance point within the | Operator Defined Target Area (ODTA)[™] | and extend the process to include the | Functional Target Area (FTA)[™] | where possible (exterior outlets).

The following image illustrates the heat mapping and display of all energy source levels based on the location of each electrical

outlet appearance point tested within the boardroom, with rendered propagation modeling displaying a direct comparative reference of the energy levels across all evaluated appearance points.

The floor plan image on the left, illustrates a total of 13 evaluated appearance points, taking just 65.416 seconds of total active capture time and approximately 3 additional minutes to complete the walk-about | TCP[™] | process.



The resulting geo-location heat map clearly identifies Power Line (PL) appearance points | 007 | and | 013 | as having elevated energy levels that will need to be investigated further by the operator to determine the actual presence of a compromise.

Remember, in a Moving Target Threat Model the Technical Operator is the Spectrum Analyzer...

Kestrel TSCM[®] Professional Software

The Advanced Kestrel[®] IQ Recorder (IQR)[™] Mode is Essential in a Modern Moving Target Threat Model

Professional Development TSCM Group Inc.

Technical Security Branch (TSB)

Determining the relationship between the two (2) appearance points in comparison to all the other appearance points will help determine whether the presence of a Technical Surveillance Device (TSD) is indicated.

The elevated energy levels may be the result of a client authorized (or unauthorized) friendly device, an unintentional radiator, or simply electrical noise as the cause of the elevated energy levels.

It is not unusual for equipment and machinery within the target area to impact the detected energy levels associated with common, shared electrical phases.

Obviously, the technical operator will continue baseline collection at all appearance points in the surrounding area of the boardroom and / or facility and expand the analysis process with focus on the appearance points exhibiting higher energy levels.

Power Line (PL) geo-location heat mapping is unique to the Kestrel TSCM[®] Professional Software as an industry disruptive capability not found on any other competitive TSCM product and brings a new standards based feature consistent with a modern moving target threat model as defined by the TSB 2000 (Technical) Standard[™].

This concludes Part III of this advanced technical briefing, for more detailed information please review the Kestrel TSCM[®] Professional Software user documentation or plan to attend the next scheduled Certified Technical Operator (CTO)[™] training opportunity...

Kestrel IQ Recorder Mode

The Kestrel TSCM[®] Professional Software includes a powerful operator defined IQ Recorder mode as a standard included capture and playback feature within the demodulation visualizer. Advanced Automatic Triggered IQ capture is also supported as part of the optional Automatic Export Control (AEC)[™] | OPT AEC capability.

The ability to record, playback, loop and analyze IQ signals is essential in a modern moving target threat model and a complex signal environment, providing the technical operator or signal analyst with powerful analytical signal content that can be edited using our unique Time Reference Sub-Sampling (TRSS)[™] and IQ file format conversion utility.

The ability to trigger, capture, playback and loop analytical IQ samples of any Signal of Interest (SOI) event as a Kestrel[®] IQ (KIQ), CSV, WAV, XML, DGZ, or DGZM file format is supported at the application level.

The ability to playback Signal Hound Spike software (XML IQ) files and the Anritsu Field Master Pro MS2090A (DGZ IQ) and (DGZM IQ) files provides advanced capability for the national security apparatus.

Our advanced demodulation control group includes a powerful Audio Spectral Density (ASD)[™] tool as part of the IQ playback feature.

Innovation is Simply the Beginning!

Visionary Software Beyond the Technology Limitations...

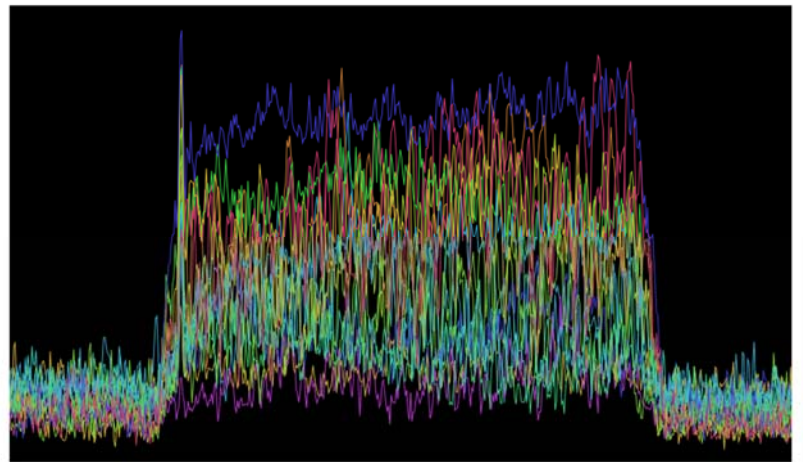
| www.pdtg.ca | www.kestreltscm.com | www.ctsc-canada.com |

| Paul D Turner, TSS TSI | pturner@pdtg.ca

| Andrzej Wolczanski, TSS | awolczanski@pdtg.ca

| Gabriele Conflitti, TSS | gconflitti@pdtg.ca

| Carol Fairbrother | cfairbrother@pdtg.ca



They say that the value of art is in the eye of the beholder! Every day a new never before seen artistic spectrum is developed within the Kestrel TSCM[®] Professional Software somewhere in the world. Whether impressionist, contemporary or abstract, the RF spectrum brings a commonly understood meaning for every professional technical operator who views it...

Kestrel TSCM[®] Professional Software is innovative industry leading, disruptive technology, sold in 45 countries worldwide.