TCP ™ Enhanced Radio Direction-Finding (RDF)

Utilizing the Kestrel TSCM Pro Software Tap Capture Plot (TCP) ™ | OPT TCP module in a general direction-finding role is useful for determining the general direction of significant wide geographical area transmitters such as FM broadcast and other fixed transmitter sites, when conducting facility level TCP ™ analytics.

For example; determining the general direction to a commercial FM broadcast station or other external transmitter site is supported by analyzing the distributed energy pattern across the target area to identify and visualized differences in energy patterns caused by small amounts attenuation across the facility level target area.

When the default reference level is viewed on the Kestrel ® RF Visualizer (RFV) ™ display, it is possible to visualize the elevated energy levels, identifying the general direction from which the Signal of Interest (SOI) is emanating, as reflected by the RED | ORANGE heat mapping color overlay.
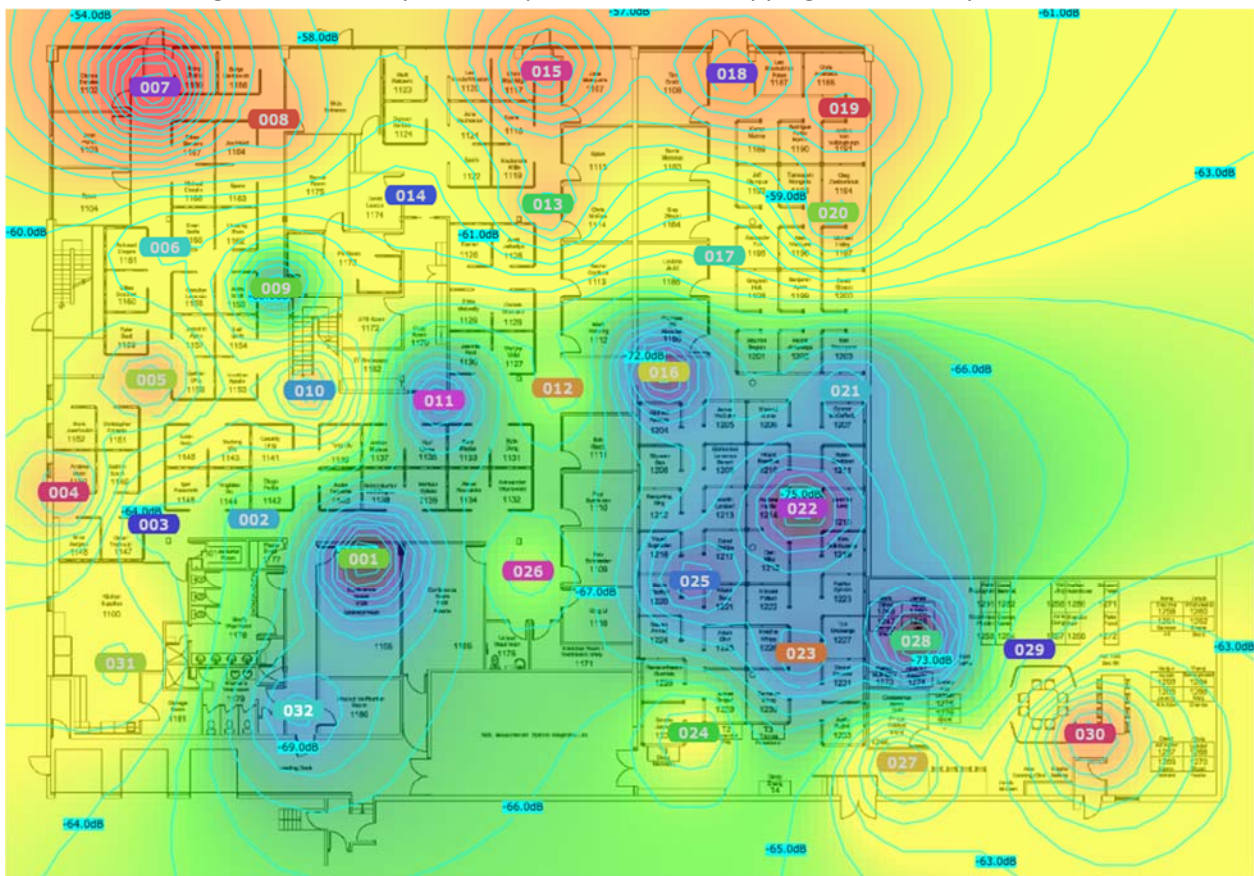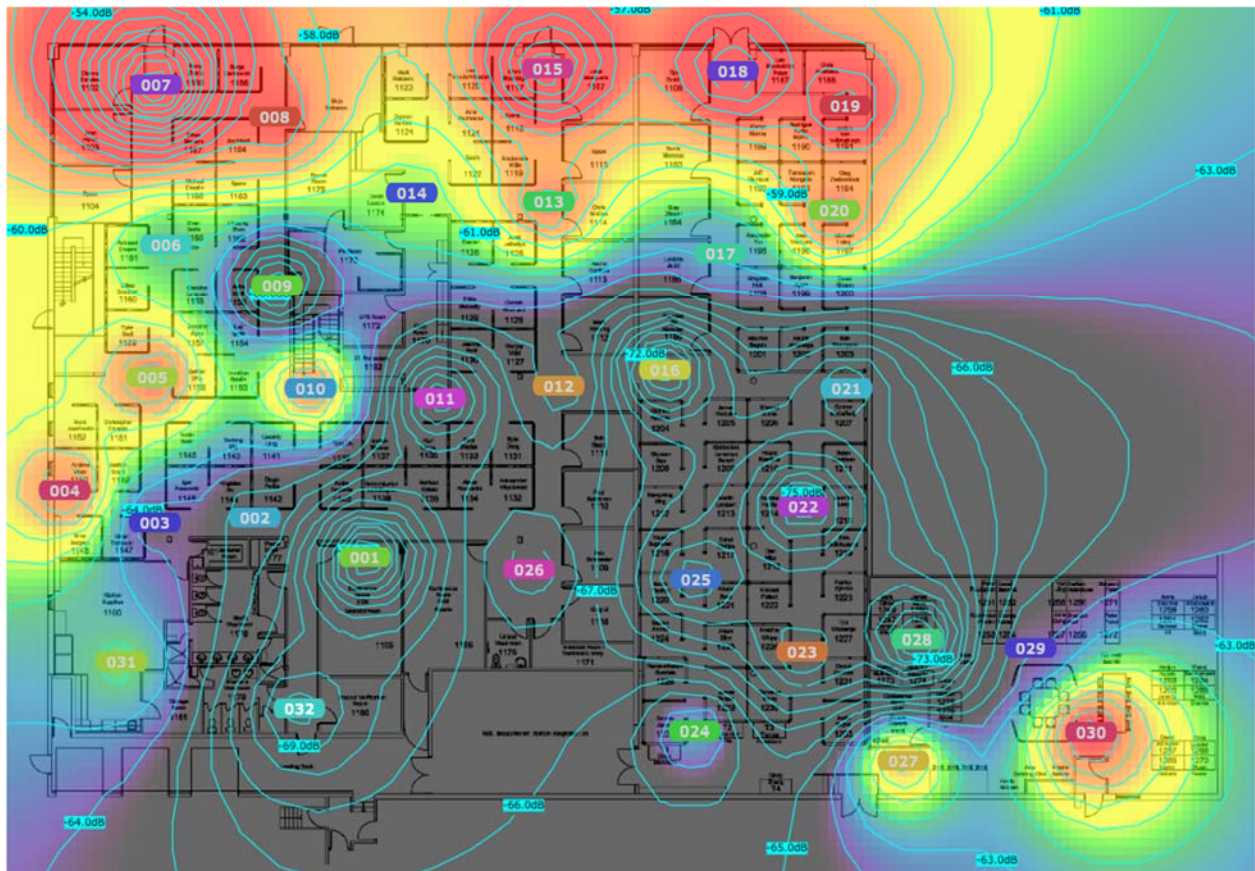

Default RSSI Values | v1.40xx

The TCP ™ feature includes an RF Visualizer (RFV) ™ geo-location heat mapping overlay to produce an RF propagation model that can be operator defined down to a resolution of 1/10 (0.10) dB for amazing clarity.

The unique ability to capture wide band level or operator defined (or identified) channelized Location Differential Signal Analysis (LDSA) ™ spectra, display and manipulate a representative heat map under operator control, is fully supported.

When a Reference Level Off-Set (RLO) ᵀᴹ is invoked by the technical operator with a 10 dB spread, is clear as to the direction from which the 101.7 MHz commercial FM broadcast station is transmitting based on a 1 dB contour propagation model.

Reference Level Off-Set (RLO) ᵀᴹ RSSI Values | v1.40xx

Our unique Reference Level Off-Set (RLO) ᵀᴹ feature is a TSCM specific feature developed by Team Kestrel ® as standard functionality within the Tap Capture Plot (TCP) ᵀᴹ | OPT TCP module.
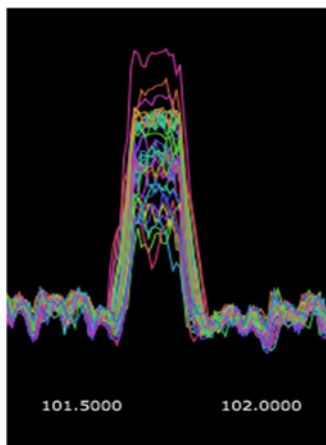

The LDSA ᵀᴹ spectra for the 101.7 MHz indicates the differential RSSI values across the TCP ᵀᴹ target area and is the basis of the default RF propagation model.

The technical operator can define the RF propagation modelling by several methods including the Reference Level Off-Set (RLO) ᵀᴹ feature by adjusting the RF propagation modelling by changing the RF contouring value, or by selecting a different propagation model (algorithm) depending mission specific requirements.

There are many highly integrated features, functionality, and advanced capabilities within the Kestrel TSCM ® Professional Software that all work seamlessly at the application level to bring powerful operator centric new technology for a wide range of mission critical deployment requirements.

TCP ™ Enhanced Signal of Interest (SOI) Localization

Our powerful Tap Capture Plot (TCP) ™ feature can be utilized to capture a wide Range of Interest (ROI) and bring focus to channelized Signals of Interest (SOI) for the purpose of localizing emitters within the target area.
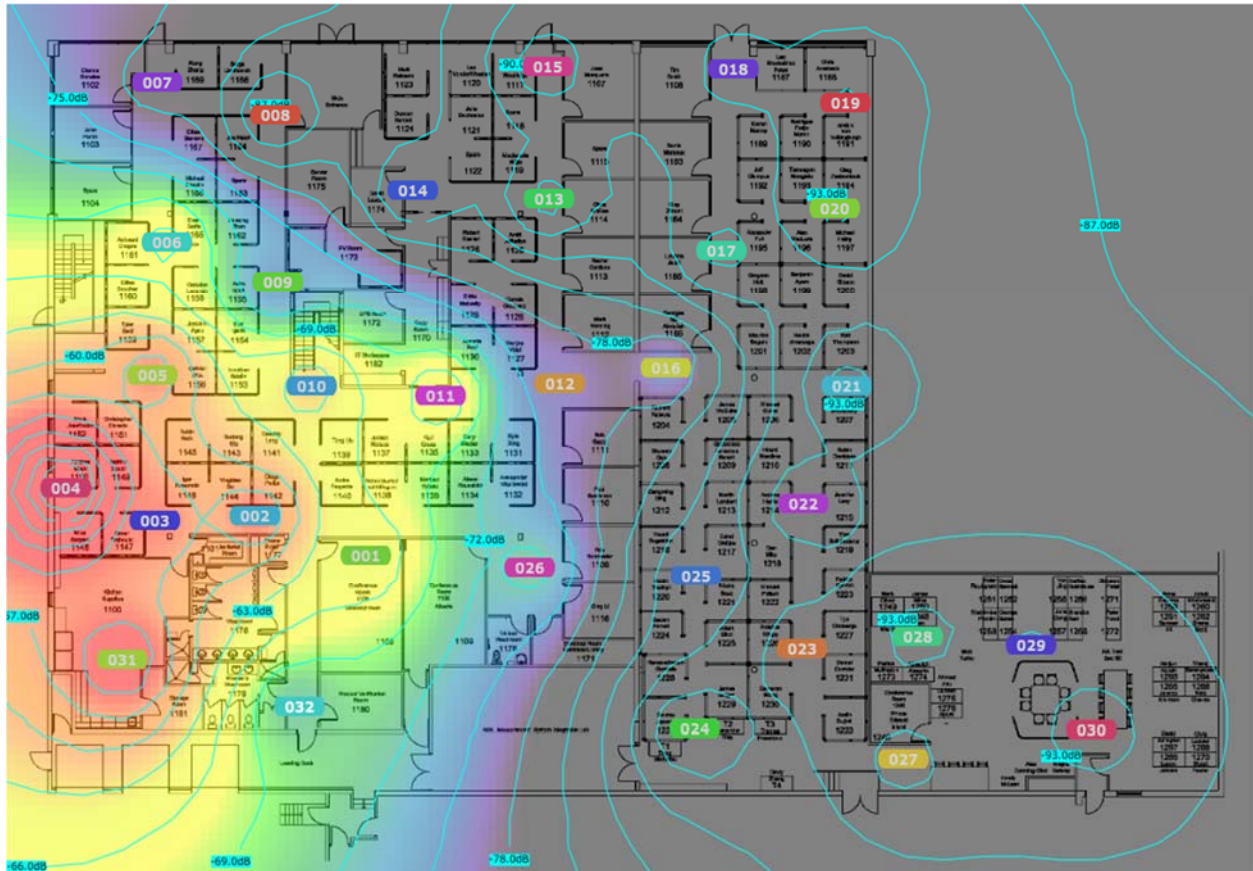
Reference Level Off-Set (RLO) ™ RSSI Values | v1.40xx

The above example illustrates the localization of a 169.5050 MHz emitter identified within the target area and the image to left displays the LDSA ™ modelling.
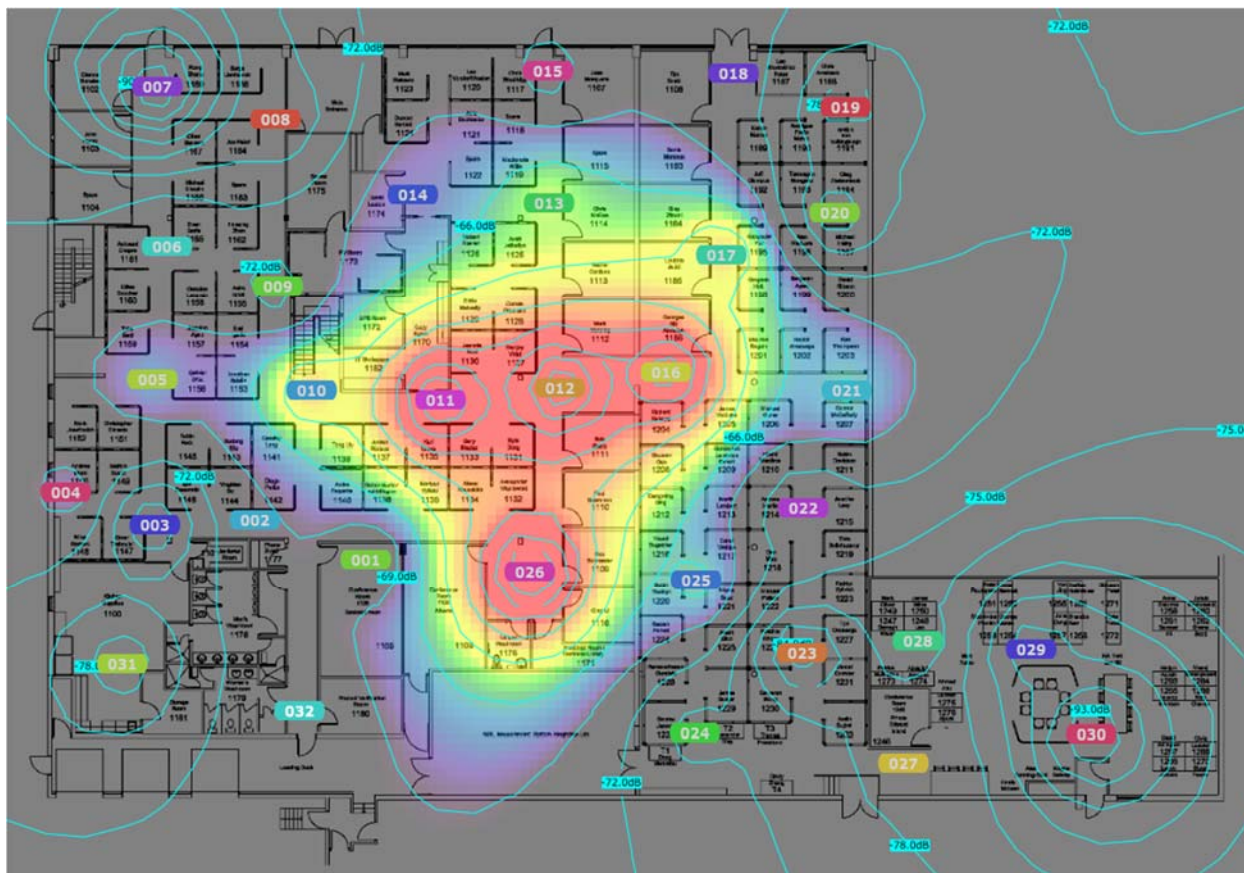
The TCP ™ feature illustrated above defines a 25 MHz to 475 MHz LDSA ™ Range of Interest (ROI) and our innovative Reference Level Off-Set (RLO) ™ feature that is utilized to bring focus to the RF Visualizer (RFV) ™ geo-location heat mapping display.

The Technical Surveillance Device (TSD) emitter was located near < 004 > utilizing Inverse Square Weighting across 3 dB propagation model contouring.

In another example, within the same TCP ™ deployment, a 433.9000 MHz Signal of Interest (SOI) is localized within the target area.

In this case the emitter was located near < 012 > utilizing Inverse Square Weighting across 3 dB propagation model contouring, bringing absolute clarity to the target area.

Occupancy based propagation effects can be clearly observed indicating the attenuation caused by workstations vs the open isles and more areas across < 011 > < 012 > <016 > and < 026 >.

Reference Level Off-Set (RLO) ^{TM} RSSI Values | v1.40xx

The ability to tune the RF Visualizer (RFV) ^{TM} geo-location heat mapping across the entire Location Differential Signal Analysis (LDSA) ^{TM} Range of Interest (ROI).

By way of contrast, the following image represents the raw RSSI propagation model across the TCP ^{TM} plot without the Kestrel ® Reference Level Off-Set (RLO) ^{TM} feature utilized to bring focus and clarity to the localization process.
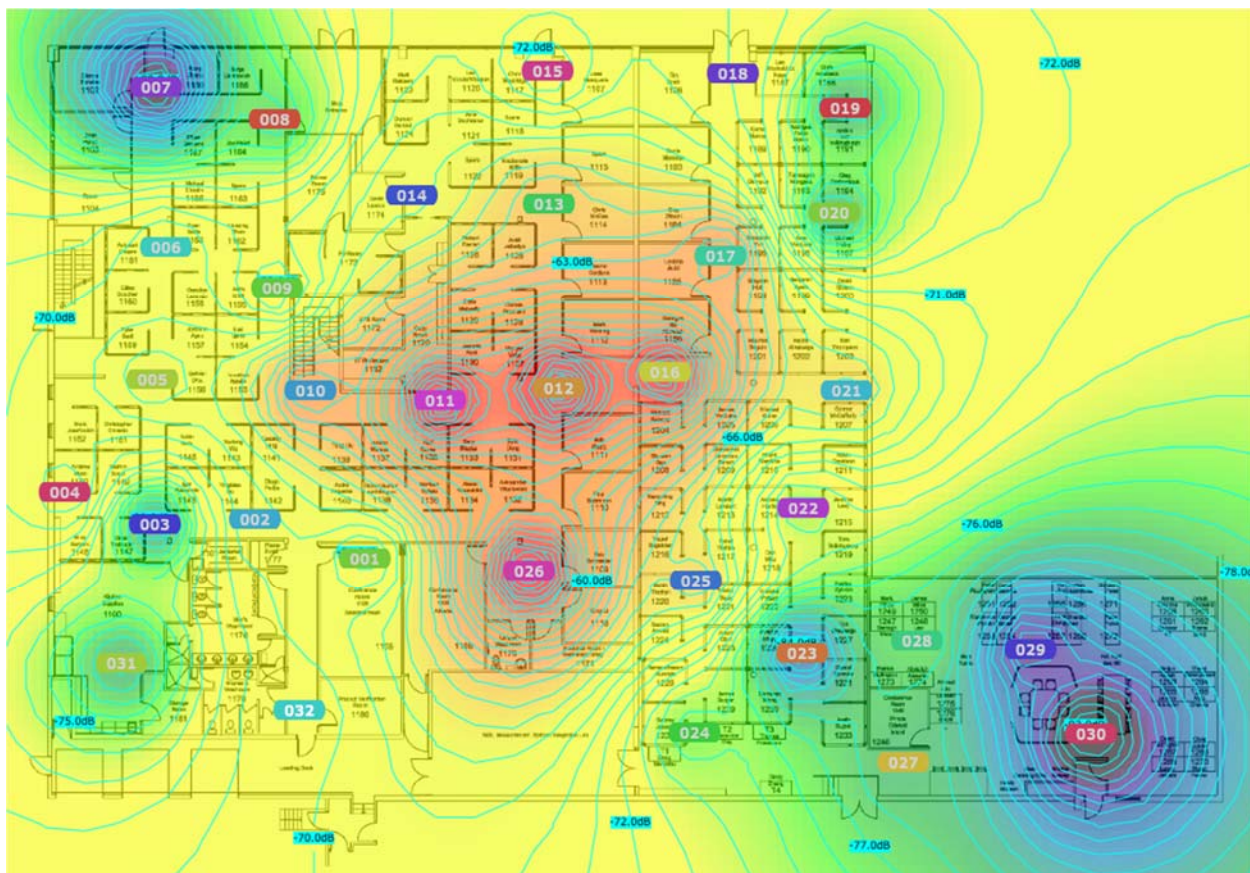
Raw RSSI Values | v1.40xx

In this example, 1 dB RF propagation contour modelling provides detailed distributed RSSI levels across the entire target area subject to TCP ™ capture.