The industry leader in TSCM equipment.
Technical Security Specialists

Electronic eavesdropping and illicit surveillance pose significant threats to businesses, law enforcement, government organizations, and private individuals. Wrongful exposure of sensitive information including merger or acquisition planning, marketing strategies, financial projections, or executive employee behavior can severely harm an organization. The mere perception of compromised information can lead to stock decline, negative publicity, damaged business relationships, and loss of customer confidence. REI offers high-quality, world-renowned equipment and practical, hands-on instruction to guard against critical information loss.

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REI serves customers around the world and from many different cultures. The Sales staff and a dedicated network of international resellers understand the unique challenges faced by those with technical security needs. REI works to protect the valued relationships and reputation it has with its customers. We look forward to working with you.

REI Manufacturing Process

REI has been manufacturing its complete product line for more than 30 years at its middle TN, U.S.A. headquarters. Each member of the REI team works toward the common goals of building the best products possible and providing the best customer care. Every product is inspected before it ships, and with this level of manufacturing control, customers never have to worry about the quality of the products. REI’s lean manufacturing system is uniquely designed to bring engineering and production together to produce a wide array of complex products, start to finish. Each time a customer places an order with REI, they can be confident that it meets the highest standards.

Meet the Sales Team

REI serves customers around the world and from many different cultures. The Sales staff and a dedicated network of international resellers understand the unique challenges faced by those with technical security needs. REI works to protect the valued relationships and reputation it has with its customers. We look forward to working with you.
The OSCOR is a portable spectrum analyzer with a rapid sweep speed and operational features suited for detecting unknown, illegal, disruptive, and anomalous rogue transmissions across a wide frequency range. The built-in antennas and analysis software make it easy to deploy, capture, and compare spectrum data from multiple locations.

**SIGNAL ANALYSIS & LOCATION**

Reference and target traces are quickly captured, stored, and compared for a complete RF mapping solution. Signals are easily located based on RSSI level change. Correlation and Ranging functions locate and identify analog threats. Users can easily compare real time traces and peak traces using Masking to log newly detected signals over time.
OSCOR MODEL OPTIONS

There are four OSCOR Spectrum Analyzer models available:

- OSCOR Blue - 24 GHz
- OSCOR Blue - 8 GHz
- OSCOR Green - 24 GHz
- OSCOR Green - 8 GHz

The 8 GHz and 24 GHz models vary solely on frequency range.

OSCOR BLUE VS. OSCOR GREEN

The technical differences between the OSCOR Blue and Green are limited to the Trace Data Recorder/Spectrogram functions. The OSCOR Blue Trace Data Recorder saves intermediate traces at 12.2 kHz resolution every 5 seconds minimum, where the OSCOR Green Spectrogram saves intermediate traces at 24.4 kHz resolution every 10 seconds minimum.
TRACE DATA RECORDER

The Trace Data Recorder (Spectrogram) builds an intermediate peak trace over a user defined frequency span and time interval and repeatedly stores these intermediate peak traces for waterfall analysis. The intermediate peak trace is “zeroed” between each time interval.

This function allows users to review signal activity over extended periods of time - as long as the storage and power limits will allow. Users can scroll up and down through the waterfall to examine the times at which transmissions occurred and for how long. Users can scroll left and right on the upper spectral display to view other signals collected during the same period.

PERSISTENCE

Persistence enhances the ability to recognize signals that may be hiding or masked by existing ambient environment signals. The Persistence display provides a trace graphic with a decaying color brightness based on the persistence (transmit duty cycle) of respective signals.

Signals with higher transmit cycles result in brighter colors compared to signals with lower transmission rates having darker colors. Therefore, signals occupying the same frequency bands are visibly identified because of color variations associated with transmit duty cycles. This function helps users locate signals that may not be detected by peak trace or waterfall analysis.

AUDIO AND VIDEO DEMODULATION

Audio demodulators:
- FM wideband
- FM narrowband
- AM wideband

AM narrowband
Sub-carrier
Single Sideband

Demodulation bandwidths:
1 Audio: 800 kHz, 200 kHz, 12.5 kHz, 6.25 kHz, 2 kHz
2 Video: 12.75 MHz, 6.375 MHz

Video formats:
- NTSC, PAL, SECAM
- Wideband AM and FM demodulation
- Video demodulation displayed on screen

The OSCOR continues to sweep the spectrum while demodulating.

MULTI-PURPOSE PROBE

The multi-purpose probe plugs into the auxiliary port on the back panel of the OSCOR for capturing carrier current signals, in-line measurements of cable TV systems, low frequency spectrum activity, infrared signals, and visible light transmissions. This included accessory provides a plethora of capability in a single tool.

POST-INVESTIGATION RESOURCES

The OSCOR comes with a data viewer PC application that allows user to open, view, analyze, export, print, and save OSCOR files including trace, signal, audio, and screen capture files.
HOW IS AN REI SPECTRUM ANALYZER USED FOR TSCM?

The OSCOR’s integrated antenna panel collects RF signal activity and displays amplitude (signal strength) as it varies by frequency. Traditional spectrum analyzers analyze specific, known signals; with TSCM, spectrum analyzers sweep the RF spectrum for unknown, and often disguised, signals.

The OSCOR excels in applications where the frequency of the signal of interest is not known. This is a different perspective than spectrum analyzers designed for bench top test analysis of a known frequency, or general purpose software defined radios where the user is required to carry additional hardware. In TSCM, portability is extremely important. By simply walking around, you can increase the sensitivity of your search by a large factor and locate the source of the transmission:

In this example, traces are captured in three different locations. Those signals are captured on the OSCOR. Trace 3 shows the strongest RSSI and the approximate location of the transmitter.
Advanced broadband reception in the palm of your hand.

The ANDRE is a handheld broadband receiver that detects known, unknown, illegal, disruptive, or interfering transmissions. The ANDRE locates nearby RF, infrared, visible light, carrier current, and other types of transmitters. Quickly and discretely identify threats using the ANDRE’s wide range of antennas specifically designed to receive transmissions from 10 kHz up to 12 GHz frequency range.

HISTOGRAM DISPLAY WITH ZOOM VIEW

The ANDRE features a signal strength histogram displaying RF levels over user-selected time intervals ranging from 5 seconds to 24 hours. Observe differences between digital, analog, and burst signals and set alert thresholds with audio and haptic feedback. In zoom mode, only a 30 dB segment of the histogram is displayed. This reduced scale enables users to easily see small changes in RF signal activity.
APPLICATIONS

☑ Identify the location of suspicious RF signals
☑ Sweep secure areas to keep information private
☑ Detect a wide range of transmission types
☑ Prevent fraud at exam testing sites

ADVANTAGES

☑ Automatically generate a signal list from the strongest detected signals
☑ Select any signal for more details including band classification information
☑ Classify signals as threatening, friendly, or unknown
☑ Demodulate and playback live analog audio

ANDRE MODEL OPTIONS

ANDRE model options include Deluxe, Advanced, and Basic:

<table>
<thead>
<tr>
<th>ANDRE PACKAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Whip Antenna (30 MHz – 6 GHz)</td>
</tr>
<tr>
<td>(b) VLF Antenna (10 kHz – 30 MHz)</td>
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<tr>
<td>(c) Carrier Current (100 kHz - 60 MHz)</td>
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<tr>
<td>Built-in IR/Visible Light Sensor (1 kHz - 60 MHz)</td>
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<td>PC Data Viewer</td>
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<td>Standalone Battery Charger</td>
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<td>Extra Batteries (2)</td>
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<td>(h) High Frequency Down Converter (500 MHz - 12 GHz)</td>
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<td>(i) Ultrasonic Probe (15 kHz - 80 kHz)</td>
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<td>(j) Directional Antenna (70 MHz - 500 MHz)</td>
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<tr>
<td>Data Logging</td>
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<tr>
<td>Boom Extender, Probe Tripod, IR Filter, powered cable connectors</td>
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</table>
The ORION Non-Linear Junction Detector detects electronic semiconductor components in walls, floors, ceilings, fixtures, furniture, containers, or other surfaces. The ORION is made to detect and locate hidden cameras, microphones, and other electronic devices regardless of whether the surveillance device is radiating, hard wired, or turned off. The ORION’s circularly polarized transmit and receive antenna removes the risk of missing a threat due to incorrect antenna polarization. Two antennas are available - 2.4 GHz and 900 MHz. Antennas can be purchased separately or as a Deluxe set (pictured right).

**HOW DOES IT WORK?**

The ORION antenna head is a transceiver (transmitter and receiver) that radiates a 1.25 MHz-wide digital spread spectrum signal to determine the presence of electronic components. When the signal encounters semiconductor junctions (diodes, transistors, circuit board connections, etc.), a harmonic signal returns to the receiver. The receiver measures the strength of the harmonic signal and distinguishes between 2nd or 3rd harmonics. When a stronger 2nd harmonic signal is present, visual, audio, and haptic feedbacks alert users that a junction has been detected.
ORION HX Deluxe

The ORION HX Deluxe includes both antenna heads that are easily exchanged by simply turning a pair of thumb screws. The longer 900 MHz wavelength excels at detecting older, less refined circuitry and also penetrating denser building and construction materials compared to the shorter wavelength of the 2.4 GHz model, which excels at detecting modern, surface mounted circuitry in normal office environments.

ORION MODEL OPTIONS

To satisfy a variety of international compliance regulations including FCC, CE, and others, different ORION models are available:

- ORION 2.4 HX - 3.3 watt
- ORION 2.4 HX - 6.6 watt
- ORION 900 HX - 1.4 watt
- ORION 900 HX - 3.2 watt
- ORION HX Deluxe - 6.6/3.2 watt

All ORION orders come with the quick-disconnecting handle, allowing customers to add-on the alternate antenna head at any time. Keypad models also available.
The TALAN Telephone & Line Analyzer combines multiple phone and wiring tests into a single piece of equipment. In addition to multimeter tests, the TALAN performs Non-Linear Junction Detection, RF analysis, and Frequency Domain Reflectometry. A multi-test database system provides the ability to perform tests on all pair combinations, storing data for historical comparison and comparison against other lines.

**AUTOMATIC SWITCHING MATRIX**

The TALAN includes a built-in automatic switching matrix for testing all pair combinations. For example, if a cable has 8 conductors, there are 28 combinations of pairs to test; the TALAN can automatically switch through all combinations, performing test functions and storing test results for comparison.
**APPLICATIONS**

- Detect wire taps
- Locate illicit tampering and security vulnerabilities
- Trace wires to determine line breaks
- Analyze VoIP packet traffic for anomalies

**ADVANTAGES**

- Automatically switches through all line pair combinations with every test
- Combines capabilities of a high gain audio amplifier, line tracer, and multimeter
- No other piece of equipment exists that can perform all of the TALAN tasks

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**VOIP PLUS+ ANALYSIS**

The TALAN can capture and analyze network streams for fast identification of unauthorized VoIP traffic. Users can quickly detect if a VoIP phone system is passing data packets when the phone is not in use. VoIP data collected by the TALAN includes:

- Source and destination MAC/IP addresses
- Header type
- Number of total packets
- Packet rate
- Peak rate
- Run time

The TALAN software recognizes older protocols that other equipment may miss, increasing the probability of detection. Extensive, advanced filtering makes it easier to locate and identify suspicious packet information. New functionality allows for on-board analysis versus exporting information to third-party packet analyzing software.

The patent-pending Fast Fourier Transform algorithm converts the arrival times of network traffic into a packet frequency graph. By transforming this information from time domain to frequency domain, the TALAN creates identifiable patterns not easily noticed in a traditional packet list allowing the user to detect live VoIP traffic.
DIGITAL MULTIMETER TESTS & DEMODULATION

The TALAN includes multimeter tests such as Voltage, Current, Capacitance, and Resistance. A new input panel provides the ability to test twisted pairs against modern telecommunication threats including shield and ground. Dwell selection options allow for greater accuracy without sacrificing speed.

The Digital Demodulation function provides the ability to determine if a digital phone line is passing audio when it should not. The TALAN is able to digitally demodulate 50+ codecs.

FREQUENCY DOMAIN REFLECTOMETER (FDR)

Similar to a TDR (Time Domain Reflectometer) but based on a different technical approach, the TALAN’s FDR can “shoot” a line for impedance anomalies indicating a potential security threat.

A TDR only displays a single trace making it difficult to determine whether a fault response is the result of a connection block in a normal wiring plan or a wire tap. With the TDR, a trace from each pair combination would have to be collected separately and then compared. The TALAN FDR, on the other hand, can display multiple pair traces on the same graph.

NON-LINEAR JUNCTION DETECTION ON A LINE

The TALAN includes a NLJD test to detect electronics connected to an isolated line. This is one of the most powerful tests for quickly determining whether there are additional electronics attached to a wire.

The example to the right indicates a parallel tap on pair 3:6. Because of multiple pair combinations any combination with either a 3 or 6 indicates some response, but the electronics are clearly detected on pair 3:6 with the strongest response.

RF ANALYSIS & DETECTION

The TALAN includes a Spectrum Analyzer that provides a detailed frequency spectrum display up to 85 MHz. This function also includes a time domain display to show the modulation for AM and FM signals.

The TALAN also includes a Broadband RF Probe to check free space RF energy up to 8 GHz, graphing the RF level over time to identify the location of a transmitter.
HOW IS THE TALAN USED FOR TSCM?

Business phones have built-in microphones, speakers, conductive cabling and a never ending power source and can be found throughout office buildings everywhere. With the right know-how, a telephone can be turned into an eavesdropping device - one that would be very difficult to detect.

Idle phones, extra cabling, and unused pairs are all opportunities to access a system. Testing these vulnerabilities can be done manually with a variety of electronic tools including voltmeters, audio amplifiers, line tracers, and more. However, testing should be done by someone trained with the correct test procedures to keep from alerting attackers or damaging the system. Manual testing can also be enormously time consuming and often impractical, especially when it comes to conductor pair testing.

The TALAN significantly streamlines the testing process. Perform multiple tests on all pair combinations and store the results for comparison.

POST-INVESTIGATION RESOURCES

The TALAN comes with a data viewer PC application provides the ability to organize, analyze, and export TALAN test sequence data and charts for report writing. Moreover, the software provides the ability to compare numerous phones/targets on the same chart allowing the user to quickly identify anomalies.
Telescoping video inspection for hard-to-reach areas.

The VPC 2.0 Video Pole Camera extends the view of surroundings above drop ceilings, behind immovable objects, around corners or other hard-to-reach areas—even in dark situations. No external cables are required. The integrated telescoping pole extender with large color monitor allows for rapid inspection.

FEATURES AND APPLICATIONS

Extend the view of your surroundings by up to 16 ft. (4.9 m) depending on the model you select. The VPC 2.0 features a motorized tilt camera head with >60° tilt angle, large LED display, and media recording and playback (still pictures, video, and audio). The color camera head includes white LED illumination for inspection in dark areas. The black and white camera head option is available for covert or tactical applications with infrared LED.

- 600x480 MPEG Video Output
- 720x480 JPEG Photo Capture
- 5 lbs (2.3 kg) Unit Weight
- Micro SD Input (1 - 4 GB)
CMA-100
Multi-purpose high gain audio amplifier.

CMA-100 Countermeasures Amplifier is a high gain audio amplifier used to detect and identify certain types of surveillance devices attached to building wiring such as telephone wiring, LAN and server systems, AC power, and alarm wire. The CMA-100 employs a sophisticated automatic gain control circuit (with manual option) that is superior to most audio amplifiers.

FEATURES AND APPLICATIONS

Large signals can be monitored with minimal distortions and adjustable bias voltage can activate devices that are voltage or current sensitive. The balanced input impedance can withstand being attached to live power lines with voltages up to 250V. The CMA contains a built-in AC/DC digital voltmeter, selectable audio filters, and a wide dynamic range.

ANG-2200

Protecting private conversations with unintrusive noise masking.

The ANG-2200 Acoustic Noise Generator creates a perimeter of noise that defeats acoustic leakage eavesdropping devices including wired microphones inside walls, contact microphones, audio transmitters located in AC outlets, and laser/microwave reflections from windows.

FEATURES AND APPLICATIONS

The masking system injects noise into the environment perimeter and not directly into the environment—allowing normal conversation while defeating eavesdropping devices. Two channels are offered, each with high and low frequency control to compensate for material composition, with truly random noise sources.
REI offers the largest commercially available technical surveillance countermeasures (TSCM) training facility in the world. Students perform countermeasure sweep exercises in target-rich project rooms that simulate live environments. REI has a progressive curriculum suitable for both beginning and advanced technicians. Ensure your sweep skills and equipment are up to date against sophisticated, modern threats during one of REI’s regularly-scheduled courses.

All courses include hands-on exercises, using state-of-the-art equipment in dedicated project rooms that simulate threat scenarios. Threats include RF transmitters with analog and digital modulation techniques, hidden cameras, tapped telephone and LAN lines, infrared, and carrier current. The training facility also includes a high-end signal generator to simulate various types of modulation techniques. Students use project rooms to exercise their knowledge of the use of detection equipment.

Regularly-scheduled courses specializing in basic and advanced countersurveillance procedures.

ADVANTAGES

- Over 10,000 square feet of dedicated classrooms and project rooms
- Six full-time instructors with 50+ years of combined experience
- Meet and network with other security professionals
- Custom and private courses also available
COUNTERMEASURES CORE CONCEPTS - LEVEL 1
This introductory course familiarizes students to the components of a countersurveillance investigation and the related sweep equipment. Students will learn about telephone testing, non-linear junction detectors, basic RF search techniques and investigative procedures.

OSCOR RF COUNTERMEASURES - LEVEL 2
Prerequisite: Level 1
This course continues on the Countermeasures Core Concepts course with a brief highlight of TSCM threats and equipment, and then focuses primarily on the operation and deployment of the latest OSCOR RF spectrum analyzer, including detection and location of potentially illicit or unknown RF signals using trace analysis and RF mapping.

TALAN TELEPHONE COUNTERMEASURES - LEVEL 2
Prerequisite: Level 1
This course continues on the Countermeasures Core Concepts course and provides in depth instruction on digital telephone system testing and analysis for technical threats, including the operation of the TALAN Telephone and Line Analyzer.

VOIP - LEVEL 3
Prerequisite: TALAN Level 2
This course will introduce students to the emerging technology of VoIP (Voice over Internet Protocol) from a countersurveillance perspective. Students will gain an understanding of basic networking essentials and VoIP hardware and software. While the focus will be on testing the characteristics of a network to determine potential threats and vulnerabilities, students will use additional hardware and software solutions to capture and analyze multiple types of network traffic.

RF CERTIFICATION - LEVEL 3
Prerequisite: OSCOR Level 2
This advanced TSCM course provides one and a half days of refresher training and two and a half days of pass/fail certification testing; the last day is reserved for retraining and retesting advanced concepts of RF detection equipment.

TALAN CERTIFICATION - LEVEL 3
Prerequisite: TALAN Level 2
This advanced telephony course provides one and a half days of refresher training on the TALAN Telephone and Line Analyzer, and two and a half days of pass/fail certification testing; the last day is reserved for retraining and retesting advanced concepts of the TALAN.

ADVANCED EQUIPMENT USE - LEVEL 3
Prerequisites: All Level 2
This class includes one day of equipment review and advanced TSCM concepts training followed by an elaborate multi-day exercise that focuses on procedures and concepts that test students’ ability to deploy equipment effectively.