TALAN™ 3.0
TELEPHONE AND LINE ANALYZER

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PATENTS PENDING

The TALAN detects and locates illicit tampering and security vulnerabilities on digital, analog, and VoIP telephone systems.

Input Panel

Shielded MOD8/RJ45 Jacks

Banana Jacks

Expansion Port

RF Antenna Input

Headphone Jack

Rotary Dial

Touchscreen 8.4 inch (21.3cm)

Test Dashboard View

Power Button

Keypad

Function Keys

Ethernet

DC Power Input

USB Port

Compact Flash Memory Port

The TALAN provides a suite of tools in a single piece of equipment to accurately analyze phones and lines for faults and security breaches.

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Analyze digital, analog, and VoIP phone systems and wiring for faults, anomalies, and security risks.

Suite of Telephone Tests Including an 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.

3.0 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.

Connect inline with a phone using an REI VoIP adapter, port mirroring, or ethernet hub to capture VoIP packet traffic for analysis. VoIP data collected by the TALAN includes source and destination MAC/IP addresses, header type, statistics - total packets, packet rate, peak rate, and run time. The TALAN software recognizes older protocols that other equipment may miss, increasing the probability of detection.

The easy-to-use interface allows users to visually observe patterns of consistent, repetitive traffic. Common VoIP services will often display a unique set of characteristics that can later be used to visually identify similar sets of traffic. 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 (FFT) 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.

Analyze traffic by packet hits on all streams or isolated streams, payload (size of data in packets over time), and frequency. Audio demodulation also provides the opportunity to listen to live packet streams.
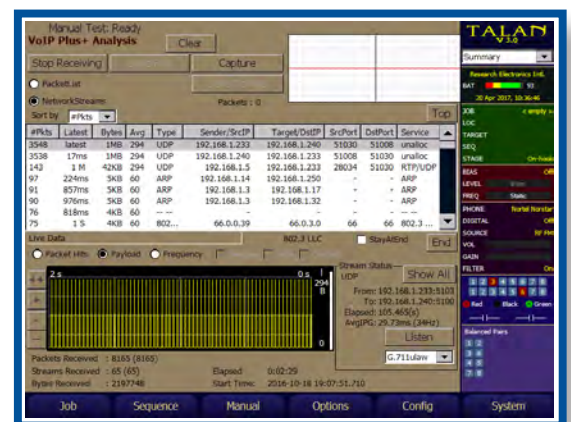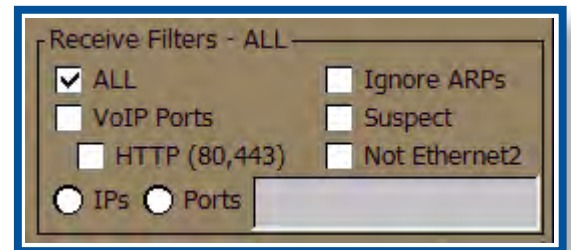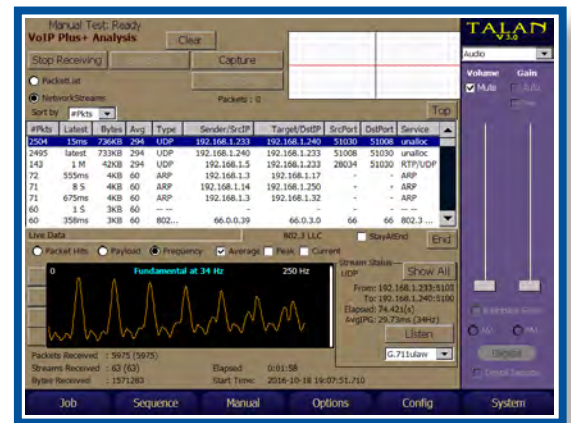
3.0 Digital Multimeter Tests

The TALAN includes multimeter tests such as Voltage, Current, Capacitance, and Resistance.

The automatic switching matrix allows the user to quickly measure and display results for all pair combinations, easily identifying any anomalies.

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.

Digital Demodulation

Includes digital decoding capabilities for approximately 80% of the world's digital phone systems.

The Digital Demodulation function provides the ability to determine if a digital phone line is passing audio when it should not.
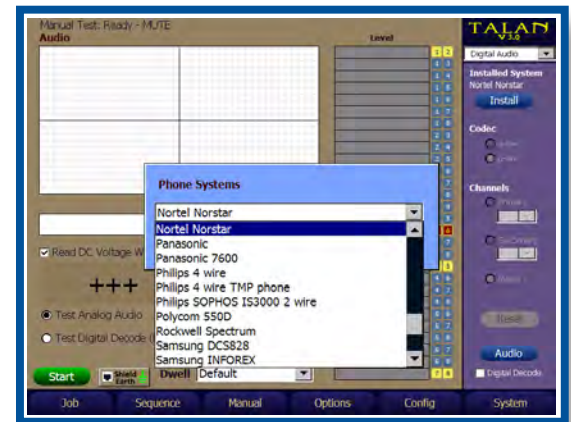
Frequency Domain Reflectometer (FDR)

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.

The FDR also has the ability to plot FDR traces of multiple pairs for historical comparison on one display.
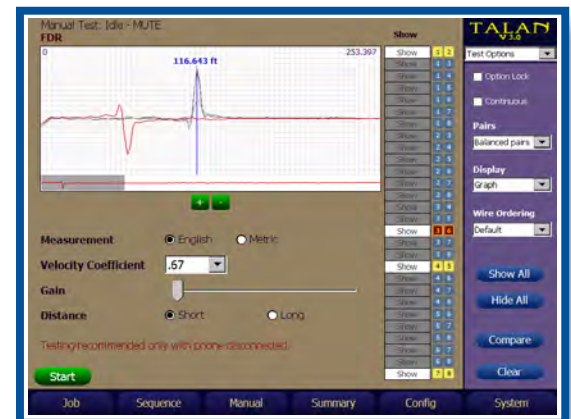
Non-Linear Junction Detection (NLJD) on a Line

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.
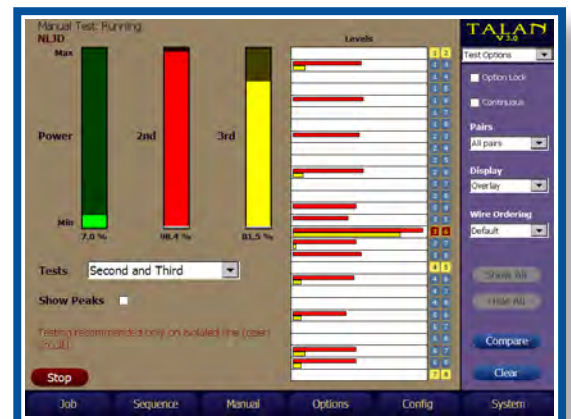
High Gain Audio Amplifier and Built-in Audio Oscilloscope

The TALAN includes a High Gain Audio Amplifier (20 Hz to 20 KHz) with up to 80 dB of total system gain (voice band).

A DC Bias Voltage Generator (±80 VDC) is also provided to power attached electronics.
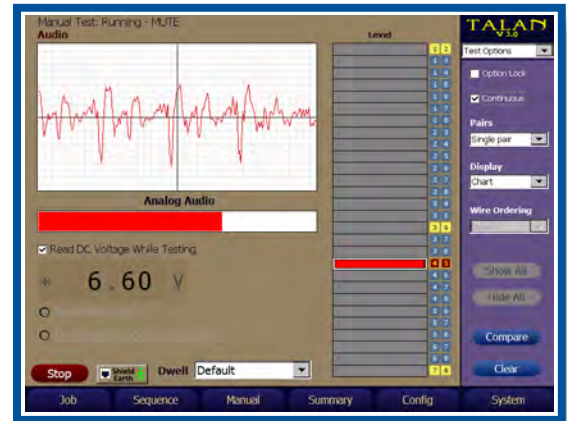
RF Analysis and Detection

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.
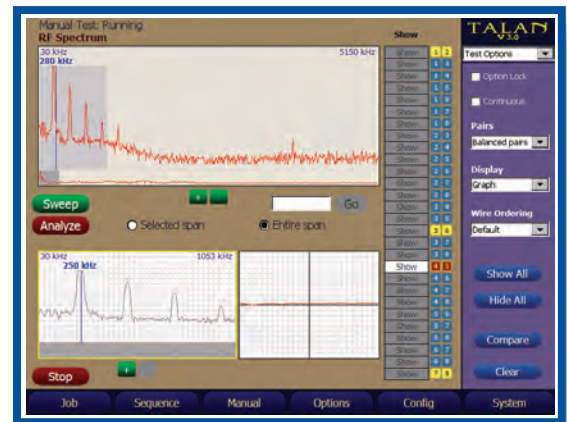
Test Data Storage and Analysis

The TALAN provides the ability to store data for all testing functions in a database structure for future review and comparison.

TALAN Data Viewer Software - A PC application that 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. The TALAN Data Viewer Software can be downloaded for free on the REI website.
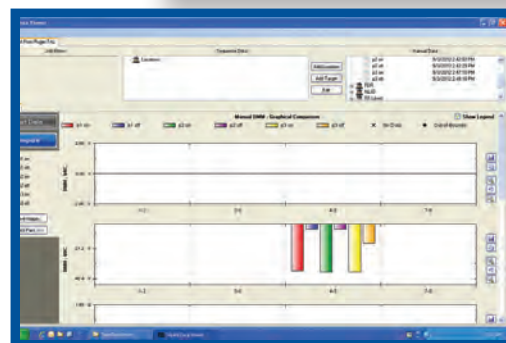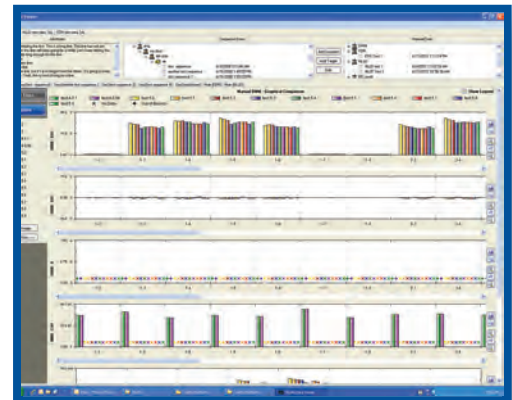
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TALAN ADVANTAGES

COMPLETE SUITE OF TESTS
COMBINES MULTIPLE TESTS INTO ONE PIECE OF EQUIPMENT

AUTOMATIC SWITCHING MATRIX

DIGITAL MULTIMETER TESTS

FDR FREQUENCY DOMAIN REFLECTOMETER
DETECTS IMPEDANCE ANOMALIES SUCH AS AN EAVESDROPPING TAP ON A WIRE

LINE NLJD
DETECTS ELECTRONICS ATTACHED TO A WIRE

DIGITAL DEMODULATION
CONFIRMS WHETHER A LINE IS PASSING AUDIO

VOIP PHONE & LINE ANALYSIS SOFTWARE
TESTS VOIP PHONE AND LINE PACKET TRAFFIC

TRAINING BY REI INSTRUCTORS

REI operates the largest commercially available TSCM training facility in the world. On-site training also available.

MARKETING CHARACTERISTICS

CONTROL SYSTEM
Primary Computer: 32 bit RISC processor, 520 MHz
Internal Memory: 64 MB SDRAM (OS), 64 MB Flash
External Memory: Compact Flash Type III, USB mass storage

DIGITAL I/O
Network: 10/100 Ethernet Controller for IP Packet Detection
USB: USB Device (A Type) supports external keyboard, mouse, and USB mass storage device; USB Host (B type) for future use

ANALOG I/O
Headphone Output: 3.5 mm connector
Microphone Input: 3.5 mm input

USER INTERFACE
Hard Keys: 6 Soft Menu Keys, 5 Button Quadrant, Navigation & other dedicated keys
Encoder: High-Resolution Optical Encoder
Integrated Touch Screen with Stylus
Test Inputs:
  Dual MOD8: Supports 2, 4, 6, & 8 wire Modular Phone Jacks with Shield
  Banana Type: Standard sleeved sockets: Ring, Tip, and Earth
  SMB RF Input: RF/Antenna Connection to 8 GHz Broadband Detector
  Expansion Port: Supports communication and measurement for use with future accessories
All Inputs Electrically Isolated

RF SYSTEM
Spectrum Analyzer:
  Dual Conversion, Super-Heterodyne Receiver
  Frequency Range: 30 kHz to 85 MHz
  Sweep Time: 2 Seconds
  Step Size: 1 kHz
  Bandwidth: 18 kHz
  Sensitivity: -100 dBm

Broadband Detector:
  RF SMB Input: To 8 GHz
  Line Level Test: 100 kHz to 600 MHz
  Sensitivity: -65 dBm

DIGITAL MULTIMETER
Quick Response Auto-Ranging: 500 msec Sample Rate
AC/DC Volts: 0 to 250V Maximum
Resistance: 0 to 42 MΩ
Capacitance: 50pF to 40µF

BIAS GENERATOR
Optically Isolated, Direct Digital Control: High voltage DAC
Output Ceiling: ±80V
Output Ceiling (Shield): ±65VDC, ±33VAC
Modulation: Fixed voltage, or variable rate Sine wave (10 Hz - 300 Hz)

AUDIO
Audio Bandwidth: 20 Hz - 20 KHz
Gain: Up to 80 dB total system gain
AGC: Digitally Controlled Automatic Gain
Filter: Analog Voice band filter (300 Hz to 3 kHz)

POWER SYSTEM
External Input: 15VDC @ 3A
Universal Power Supply: 100-240VAC, 50-60 Hz
Removable Battery: Rechargeable Lithium ion, 4-hour (typical)

MECHANICAL
Dimensions: 10.0 in x 12.9 in x 2.7 in (25.4 cm x 32.8 cm x 6.9 cm)
Weight with Battery: 6 lbs (2.7 kg)
Case Dimensions: 19.5 in x 14.9 in x 5.4 in (49.5 cm x 37.8 cm x 13.7 cm)
Loaded Case Weight: 19.0 lbs (7.1 kg)
Operating Temperature: 0°C to +50°C

CE