NIRIKHON

SECURITY & DEFENCE TECHNOLOGY

PRODUCT BROCHURE

COUNTER-SURVEILLANCE EQUIPMENT

Non-Linear Junction Detector (NLJD)

The Non-Linear Junction Detector (NLJD) by NIRIKHON locates powered-off, unpowered, and shielded electronics — including hidden bugs, trackers, and nano-SIM cards — through 2nd and 3rd harmonic analysis at sensitivity better than -120 dBm. Silicon vs metal discrimination reduces false alarms during sweeps. Weighing ≤750g with an aircraft-grade aluminum body, it's built for extended field deployment. Backed by a 1-year warranty.



Non-Linear Junction Detector (NLJD) | Official Brochure

SOLUTION SNAPSHOT

Advanced Non-Linear Junction Detection	**Dual Harmonic Reception (2nd ~4.8 GHz & 3rd ~7.2 GHz Bands)**	**Ultra-High Receiver Sensitivity Better Than -120 dBm**
2.4 GHz ISM Band Transmitter with Adjustable 0.5W to 2.0W Output	**Daylight-Readable 3.5-Inch Full-Color TFT LCD Display**	**Ultra-Lightweight Aircraft-Grade Aluminum Enclosure (≤750g)**

OVERVIEW

Built for Real Operations 01

The Non-Linear Junction Detector (NLJD) by NIRIKHON locates powered-off, unpowered, and shielded electronics — including hidden bugs, trackers, and nano-SIM cards — through 2nd and 3rd harmonic analysis at sensitivity better than -120 dBm. Silicon vs metal discrimination reduces false alarms during sweeps. Weighing ≤750g with an aircraft-grade aluminum body, it's built for extended field deployment. Backed by a 1-year warranty.

CAPABILITIES

Key Features & Product Modules 02

Aircraft-Grade Machined Aluminum Handheld Enclosure (≤750g)

Machined from aircraft-grade aluminum, this enclosure houses the unit's transceiver electronics while keeping total weight at ≤750g. This construction balances rugged field durability with the lightweight ergonomics required for extended handheld sweep operations.

2.400–2.425 GHz ISM Band RF Transmitter (0.5W–2.0W Variable Output)

This transmitter emits a controlled RF signal across the 2.400–2.425 GHz ISM band, with output adjustable from 0.5W to 2.0W. This transmitter is what excites semiconductor junctions in target electronics, generating the harmonic response the receiver depends on for detection.

Dual-Channel Harmonic Receiver (2nd ~4.8 GHz & 3rd ~7.2 GHz)

This receiver captures both 2nd (~4.8 GHz) and 3rd (~7.2 GHz) harmonic signals reflected back from semiconductor junctions. Comparing both harmonic bands is what allows the system to reliably distinguish a genuine electronic junction from environmental noise.

High-Sensitivity RF Receiver (Sensitivity Better Than -120 dBm)

This receiver stage detects signal levels better than -120 dBm, capturing extremely weak harmonic responses from concealed or powered-off electronics that lower-sensitivity equipment would miss entirely.

Digital Signal Processor (DSP) Core for Silicon vs Metal Discrimination

The onboard DSP processes received harmonic signals to distinguish genuine semiconductor (silicon) junctions from metal-based false positives. This discrimination capability is what separates a true electronic threat detection from a wasted sweep on ordinary metal objects.

Daylight-Readable 3.5-Inch Full-Color TFT LCD Display

This display presents real-time sweep results directly on the unit, giving operators immediate visual feedback during active detection without requiring a separate monitoring device.

Rechargeable Li-Po Battery Pack (3–4.5 Hours Runtime)

The Li-Po battery delivers 3 to 4.5 hours of continuous operation per charge, supporting extended sweep sessions across large facilities or multi-room technical inspections.

USB-C Charging Interface

Charges via a standard USB-C connection, providing convenient, widely compatible power replenishment between field deployments without requiring proprietary charging hardware.

Integrated Acoustic Loudspeaker

The built-in loudspeaker provides audible feedback during Tone and Demodulation Mode analysis, allowing operators to confirm detection results through sound alongside the visual display.

3.5mm External Audio Monitoring Jack

This jack supports connection to external headphones, enabling discreet audio monitoring during sensitive sweep operations where audible feedback from the built-in speaker would be inappropriate.

Rugged Military-Grade Hard Transport Case

The unit is transported and stored in a rugged, military-grade hard case, protecting the transceiver electronics and accessories during transit between field deployment sites.

SPECIFICATION

Technical Details 05

ADVANCED NON-LINEAR JUNCTION DETECTION
✓ Included

DUAL HARMONIC RECEPTION (2ND ~4.8 GHZ & 3RD ~7.2 GHZ BANDS)
✓ Included

ULTRA-HIGH RECEIVER SENSITIVITY BETTER THAN -120 DBM
✓ Included

2.4 GHZ ISM BAND TRANSMITTER WITH ADJUSTABLE 0.5W TO 2.0W OUTPUT
✓ Included

DAYLIGHT-READABLE 3.5-INCH FULL-COLOR TFT LCD DISPLAY
✓ Included

ULTRA-LIGHTWEIGHT AIRCRAFT-GRADE ALUMINUM ENCLOSURE (≤750G)
✓ Included

NANO-SIM CARD & COVERT TRANSMITTER DETECTION (UP TO 20 CM)
✓ Included

SILICON VS METAL DISCRIMINATION VIA DSP FILTERING
✓ Included

DUAL AUDIO ANALYSIS MODES (TONE & DEMODULATION)
✓ Included

INTEGRATED SPEAKER & 3.5MM HEADSET MONITORING
✓ Included

RECHARGEABLE BATTERY WITH 3 TO 4.5 HOURS RUNTIME
✓ Included

USB-C CHARGING COMPATIBILITY
✓ Included

RUGGED MILITARY-GRADE HARD CASE WITH CE/FCC CERTIFICATION
✓ Included

QUESTIONS

Frequently Asked Questions 07

Q. Can the system reliably detect completely unpowered or switched-off semiconductor devices, such as hidden voice recorders or nano-SIM cards?

A. Yes. The system uses non-linear junction detection, which identifies semiconductor junctions based on their physical properties rather than any active RF emission — meaning detection capability is not dependent on the device being powered on. This allows the unit to locate hidden voice recorders, nano-SIM cards, and other concealed electronics up to 20 cm away, regardless of their power state.

Q. How accurate is the system's discrimination between genuine silicon junctions and corrosive metal false positives?

A. The system's DSP-based processing compares 2nd (~4.8 GHz) and 3rd (~7.2 GHz) harmonic responses to distinguish genuine semiconductor (silicon) junctions from metal-based sources such as corroded metal joints or fasteners. This dual-harmonic comparison significantly reduces false-positive alerts during sweeps, allowing technical counter-surveillance teams to focus efforts on genuine electronic threats.

Q. What is the effective detection range through common building materials during a facility sweep?

A. The system detects nano-SIM cards and covert transmitters at distances of up to 20 cm through building materials. Procurement committees evaluating specific penetration performance across individual material types (such as wood, drywall, or concrete) should note that this 20 cm figure is the confirmed general detection range as specified for the unit.

Q. What battery runtime can be expected during multi-hour facility sweep operations?

A. The unit's Li-Po battery delivers 3 to 4.5 hours of continuous operation per charge. This runtime is designed to support extended sweep sessions across single or multi-room facility inspections, with USB-C charging available for convenient recharging between operational sessions.

Ready to deploy Non-Linear Junction Detector (NLJD)?

Talk to Nirikhon for product consultation, installation planning, integration support, and enterprise deployment.

Hotline: 09647 120 120 | Website: www.nirikhon.com