



SELENA
Electronics

Lornet Series Non-Linear Junction Detectors





LorNet Star non-linear junction detector



The LorNet Star is the world's first non-linear junction detector with a spectrum analyzer of 2nd and 3rd harmonic signals of probing frequency re-emitted by a non-linear object with removable antennas of 800, 2400 and 3600 MHz.

The model has been designed especially for accurate classification and further location of electronic devices during investigation operations and identifying of miniature electronic devices in different working conditions.

FEATURES:

- The build-in spectrum analyzer with the resolution of 40 Hz and 10 kHz analysis band enables the operator of faster decision making to identify the corrosive or artificial semiconductor;
- The LorNet Star NLJD displays the level of the reflected signal from the object at a probing frequency to determine the level of metallization of the suspicious object.

The LorNet Star has two antenna units with probing signals in frequency range of 800 and 3600 MHz that are available as an option.

The full antenna set of the LorNet Star allows user to work in different environmental conditions by operating in three frequency ranges:

- 800 MHz (option) - all-weather and relatively low attenuation of signals in dense medium (brick, concrete, etc.);
- 2400 MHz - the opportunity to detect SIM cards and small (about 1 cm²) semiconductor devices;
- 3600 MHz (option) - spatial selection, facilitates the search operation in the presence of legal electronic devices.

The LorNet Star basic delivery set includes 2400 MHz probing signal antenna unit with built-in spectrum analyzer and a removable rod 70 cm long for hard-to-reach objects scanning which can be used for purposes of both search and security-check.

PRODUCT SPECIFICATIONS

ANTENNA UNIT		08	24	24S	36M
Probing signal frequency range		800 MHz	2400 MHz	2400 MHz	3600 MHz
Output power peak/average					
Pulse		10 W/230 mW	10 W/230 mW	10 W/230 mW	18 W/112 mW
CW		/300 mW	/300 mW	/300 mW	
CW with a low duty cycle					6W/375mW
Receiver sensitivity, not worse than		-110 dBm			
Probing signal output attenuation		20 dB			
Dynamic range, not less than		24 dB			
Continuous operating time	Pulse	3,0 h	3,0 h	2,5 h	2,5 h
	CW	1,5 h	1,5 h	1,5 h	1,5 h
Dimensions	ready to operate	400x200x70 mm			400x200x200 mm
	Telescopic rode	folded	540x40x40 mm		
		fully extended	860x40x40 mm		
	standard packing	650x300x200 mm			
Weight	ready to operate	1 kg			
	telescopic rode	0.2 kg			
	standard packing	8 kg			

LorNet Series Non-Linear Junction Detectors

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Lornet non-linear junction detector



FEATURES:

- Automatic and manual modes of the probing signals power control;
- Both Pulse and CW operation modes;
- High detection capability;
- Low output power (1 W in continuous wave carrier mode);
- Automatic 'low noise' frequency selection;
- 18 mm thick antenna allows to scan hard-to-reach objects in narrow space;
- Easy-to-operate;
- Ergonomic design, small dimensions and weight (less than 1 kg);
- Wireless headphones and built in a loudspeaker to listen the level of the received signals of 2nd to 3rd harmonic;
- Safe to operate (power density within the operator's zone is lower than 2,7 mW/cm²).

The Lornet NLJD is capable of detecting wide variety of electronic devices containing semiconductor elements, such as covert audio/video surveillance devices, microphone amplifiers, audio-recorders, remote control eavesdropping devices, and etc., regardless of whether they are turned on or off.

The Lornet is fitted with LED panel for 2nd and 3rd harmonics levels indication. Furthermore, the 2nd and 3rd harmonics levels can be estimated via the built-in speaker or wireless headphones to evaluate parametric impacts (e.g. knocking) on the suspicious object.

The frequency selection system automatically chooses the minimum noise frequency channel for 2nd harmonics, while the digital processing of a demodulated signal provides maximum sensitivity, making it easier to work in a complex electromagnetic environment.

In order to provide user with wide detection range and low "false" signals probability the detector has **2 operating modes**:

- CW (continuous wave carrier mode);
- Pulse modulated carrier mode with a duty ratio 44.

PRODUCT SPECIFICATIONS

Type of a probing signal		CW
		Pulse
Probing signal frequency range		890 - 891 MHz
Maximum radiated peak power	CW	0.3 W
	Pulse	10 W
Probing signal output attenuation		20 dB (11 steps)
Receiver sensitivity, not worse than		-110 dBm
Dynamic range, not less than		70 dB
Power supply		Li-Ion rechargeable battery
Continuous operating time	CW	1.5 h
	Pulse	3.5 h
Dimensions	ready for operation	1020x155x40 mm
	standard packing	570x220x12 mm
Weight	ready for operation	1 kg
	standard packing	1.5 kg

Lornet-24 non-linear junction detector



FEATURES:

- Unique combination of frequency characteristics, weight and dimensions;
- Easy-to-operate;
- Automatic and manual modes of the probing signals power control;
- Safe to operate (power density within the operator's zone is lower than 3,8 mW/cm²);
- Automatic and manual modes of power change of the probing signal;
- Low output power (1 W in continuous wave carrier mode);
- Automatic low noise frequency selection;
- Ultra compact handheld design for better work narrow space;
- Wireless headphones and built in loudspeaker to listen the level of the received signals of 2nd to 3rd harmonic.

The Lornet-24 NLJD is capable of detecting wide variety of electronic devices containing semiconductor elements, such as covert audio/video surveillance devices, microphone amplifiers, audio-recorders, remote control eavesdropping devices, and etc., regardless of whether they are turned on or off.

The Lornet-24 is fitted with LED panel for 2nd and 3rd harmonics levels indication. Furthermore, the 2nd and 3rd harmonics levels can be estimated via the built-in speaker or wireless headphones to evaluate parametric impacts (e.g. knocking) on the suspicious object.

The frequency selection system automatically chooses the minimum noise frequency channel for 2nd harmonics, while the digital processing of a demodulated signal provides maximum sensitivity, making it easier to work in a complex electromagnetic environment.

In order to provide user with wide detection range and low "false" signals probability the detector has **2 operating modes**:

- CW (continuous wave carrier mode);
- Pulse modulated carrier mode with a duty ratio 44.

PRODUCT SPECIFICATIONS

Type of a probing signal		CW
		Pulse
Probing signal frequency range		2409.6 - 2410.4 MHz
Maximum radiated peak power	CW	0.5 W
	Pulse	10 W
Probing signal output attenuation		20 dB (11 steps)
Receiver sensitivity, not worse than		-110 dBm
Dynamic range, not less than		70 dB
Power supply		Li-Ion rechargeable battery (2 in set)
Continuous operating time	CW	1.5 h
	Pulse	3.5 h
Dimensions	ready for operation	390x100x40 mm
	standard packing	230x95x62 mm
Weight	ready for operation	0.65 kg
	standard packing	1.5 kg

Lornet-36 non-linear junction detector



FEATURES:

- The world's first NLJD providing spatial selective detection of targets by a narrow (16 degrees) beam with laser pointer;
- High frequency of probing signal (above GSM band);
- Detection of a standard SIM-card at 1m distance;
- Laser pinpointing for a space selective object localization;
- Automatic low noise frequency selection;
- Automatic and manual modes of changing probing signal power;
- Outdoor explosive devices detection;
- Safe to operate (power density within the operator's zone does not exceed 4,0 mW/cm²).

The **Lornet-36 NLJD** has been created especially for a quick and reliable location of unauthorized electronic devices during investigation operations and identifying of miniature electronic devices on a considerably safe distance, which is important operating with suspicious objects (possible IED).

High signal operating frequency range makes Lornet-36 capable of detecting semiconductors covered by various materials or through slits and holes, ungrounded shielding, and etc. by means of reflection from a smooth surface.

Laser pinpointing enhances localization accuracy of the found object.

The detector is safe to operate due to a very low duty cycle of probing pulses and the detector's power density within the operator zone, which does not exceed 4,0 mW/cm².

The compact model **Lornet-36 mini** is available and its' key differences are smaller antenna size and lighter weight.

The Lornet-36 NLJD is capable of detecting wide variety of electronic devices containing semiconductor elements, such as covert audio/video surveillance devices, microphone amplifiers, audio-recorders, remote control eavesdropping devices, and etc., regardless of whether they are turned on or off.

The Lornet is fitted with LED panel for 2nd and 3rd harmonics levels indication. Furthermore, the 2nd and 3rd harmonics levels can be estimated via the built-in speaker or wireless headphones to evaluate parametric impacts (e.g. knocking) on the suspicious objects.

PRODUCT SPECIFICATIONS

MODEL	LORNET-36	LORNET-36 MINI
Type of a probing signal	Pulse	
Probing signal frequency range	3580 - 3620 MHz	
Output power peak/average:	Pulse (duty ratio 160)	18 W
	Pulse (duty ratio 20)	12 W
Energy potential (with antenna gain factor)	2000 W	
Probing signal output attenuation	22 dB (11 steps)	
Receiver sensitivity	-110 dBm	
Dynamic range, not less than	40 dB	
Angle of antenna directivity diagram (at 1st/2nd/3rd harmonics)	16/8/4 grade	30/15/7.5 grade
Power supply	Li-Ion rechargeable battery	
Continuous operating time	Pulse (duty ratio 160)	3 h
	Pulse (duty ratio 20)	2 h
Dimensions	ready for operation	470x320x190 mm
	standard packing	440x300x350 mm
Weight	ready for operation	1.4 kg
	standard packing	3.6 kg

Lornet-0836 non-linear junction detector



FEATURES:

- It is possible to operate in one of the frequency ranges and in both of them simultaneously;
- High frequency of probing signal (above GSM band);
- Detection of a standard SIM-card at 1m distance;
- Automatic low noise frequency selection;
- Automatic and manual modes of changing probing signal power;
- Wireless headphones;
- Safe to operate (power density within the operator's zone does not exceed 3,0 mW/cm²).

The **Lornet-0836** is the double probing frequency non-linear junction detector that **combines two detectors at different frequencies**: of one transmitter is **790 MHz**, and another is **3600 MHz**. Therefore the device has undeniable advantage over single-frequency devices due to:

- It is better to detect small-sized and high-frequency semiconductor devices at high frequency (and vice versa);
- It is better to work in wet ground and concrete walls at low frequency;
- Two antennas with wide (at low frequency) and narrow (at high frequency) direction diagrams enable to evaluate the situation first (at low frequency) and then to detect an object precisely using high frequency.

The Lornet-0836 is designed for a quick and reliable location of unauthorized electronic devices during investigation operations and identifying of miniature electronic devices on a considerably safe distance, which is important operating with suspicious objects.

An embedded parabolic antenna with high gain (20 dB at 3600 MHz) enables highly precise detection of semiconductor components from a long distance (up to 10 m). Laser pinpointing enhances localization accuracy of the found object.

High signal operating frequency range makes Lornet-0836 capable of detecting semiconductors covered by various materials or through slits and holes, ungrounded shielding, and etc. by means of reflection from a smooth surface.

PRODUCT SPECIFICATIONS

Type of a probing signal	Pulse	
	789.5 - 791.5 MHz	
Probing signal frequency range	3581.5 - 3607.5 MHz	
Output power: peak/average	Pulse (duty ratio 280)	18 W/64 mW
	Pulse (duty ratio 16)	6 W/375 mW
Energy potential (with antenna gain factor)	2000 W	
Probing signal output attenuation	20 dB (11 steps)	
Dynamic range, not less than	24 dB	
Receiver sensitivity, not worse than	-110 dBm	
Angle of antenna directivity diagram (at 1st/2nd/3rd harmonics)	16/8/4 grade	
Power supply	Li-Ion rechargeable battery	
Continuous operating time	Pulse (duty ratio 280)	2.5 h
	Pulse (duty ratio 20)	1.5 h
Dimensions	ready for operation	310x310x280 mm
	standard packing	440x300x350 mm
Weight	ready for operation	1 kg
	standard packing	4.5 kg

