NON-LINEAR JUNCTION DETECTOR

RFD-23

BRIEF TECHNICAL DESCRIPTION

СИБЕЛ SIBEL®

APPLICATION

The portable (hand held) non-linear junction detector RFD-23 is intended for the detection of devices containing semiconductor components.

RFD-23 can detect electronic devices regardless of their conditions, whether they are active (switched on) or passive (switched-off)

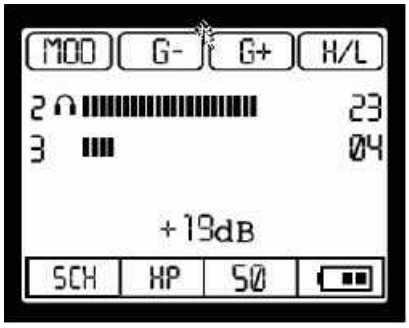
It is used to quickly search and examine floors, walls, ceilings, and furniture inside building, outdoors areas, as well as vehicles and means of transportation.

It is used for the detection and localization of hidden technical means used for data interception and transfer (listening devices), remote control devices, and explosive devices containing electronic components.

GENERAL INFORMATION

The operating principle of the RFD-23 detector is based on the property of semi-conducting elements (non-linear junctions) to re-emit second and third harmonics of super high frequency probing signals irradiating them.

Because semi-conductor junctions have non-linear characteristics that differ from those of natural junctions, it is possible to differentiate electronics from the background using the reception of the 2nd and 3rd harmonics of the probing signal. The comparison of the harmonics levels, as well as the mode of extraction of the envelope of the reflected signals allow the operator to identify which signals are reflected from the semi-conducting electronic devices and which signals are from the background of the natural (corrosive) non-linear reflectors.



The adjustable radiation power of the RFD-23 detector makes it possible to efficiently conduct searches for devices hidden in or behind various materials, including building structures and the ground.

The use of pencil-beam antenna system combined with the possibility to adjust the detector's parameters results in a very accurate localization of the objects during the search operations.

In addition to using the data displayed on the LCD screen, the operator may rely on audio signals from built-in speakers or headphones to define the presence of the second and third harmonics.

SEARCH MODE

The search mode includes the following steps:
- the presence of interference is assessed,
- the optimal value of the probing signal power and the receivers' amplification are selected,
- the search and localization of objects containing semi-conducting elements is performed.

IDENTIFICATION MODE

The presence of an artificial or natural non-linearity in the detected object is assessed based on the reflected signal parameters.

MAIN SPECIFICATIONS

Distance of assured detection of semi-conducting diode	0,7...0,8m
Indication of detection	Visual, audible
*** Emitting signal frequency**	820 ± 10MHz
Receivers sensitivity (at 10 dB signal / noise ratio)	Better than -115dB Wt
Receivers dynamic range	at least 25dB
Receivers sensitivity adjustment	Five steps of (10±2) dB each
Beam width of main lobe of transmitting and receiving antennas	Less than 40 degrees
Side lobes suppression for transmitting and receiving antennas	At least 20 dB
Pulse power of the emitted signal:	
-in search mode «SCH» «HP» -in search mode «SCH» «LP» -in identification mode «ID»	150 ± 30 W 25 ± 5 W 25 ± 5 W
Power supply of the detector	From storage battery
Time of continuous operation	More than 4 hours
Operating temperatures range	0°C...+40°C
Weight of the detector in operating condition	2,950 kg
Weight of the detector in standard package	6,850 kg

* A version operating at the frequency of 860 ± 10MHz is also available.

COMPLETE SET

1. Main unit (transmitter, receiver, and display) 1
2. Armrest with a storage battery 1
3. Antenna system 1
4. Connecting HF cables 1
5. Headphones 1
6. Simulator 1
7. Storage battery 2
8. Charger 1
9. Charger's cable 1
10. Operating manual 1
11. Case for transportation and storage 1

СИБЕЛ SIBEL®

TECHNICAL MEANS OF COUNTERACTION AGAINST TERRORISM DEVELOPMENT AND PRODUCTION

- Detecton of explosives

- detection of explosive vapors and traces
  MO-2M, MO-2D, MO-2DT, GCS-02P
- non-linear location of semi-conductor components
  RFD 23
- visualization of hidden components
  SXR–150
- metal detection
  OVERTONE, RUBIKON, MOLE

- Express detecton of drugs

- GCS-02PN

THE DEVICES ARE ADOPTED BY SECURITY SERVICES OF RUSSIA

THE DEVICES ARE USED IN 50 COUNTRIES FROM 4 CONTINENTS

Sibel Ltd.

Arbuzov str. 1/1, Novosibirsk, 630117, RUSSIA
Tel.: ..... +7 (383) 316 57 42
Fax: ..... +7 (383) 332 54 37
E–mail: ..... sibel@sibel.info