CORDON-2

Electromagnetic field analyzer

OPERATION MANUAL

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Introduction

User manual for CORDON-2 electromagnetic field analyzer. It is recommended to read this Manual carefully before operating the device.

Precautions:

- Prevent the device from water and dust
- Do not place the device near heating appliances
- Do not leave the device in places where temperature can exceed +60°C, for example, under direct sunlight
- Do not place the device on vibrating surfaces
- Avoid strong electrostatic environment. Do not touch metal constructions, PC casings, window curtains with the device antenna

- Do not open the device case
- Do not let foreign objects inside the device case
- When unplugging network adapter, do not pull by the cable
- Do not touch network adapter cable with wet hands

The device repairs must be done only by the qualified personnel of the Producer. Disregard of these requirements deprives the User of the warranty.

Description and specifications

Overlook

This is a broadband radio receiver intended for searching and locating low power sources of electromagnetic radiation in wide frequency range. The device can not only detect radiation of secretly installed radio transmitter in the premises given, but also measure its signal frequency and assess power of electromagnetic radiation at the receiving end.

The product is also applied to estimate the change of electromagnetic field according to temporal and spectral field phase diagrams.
The item makes it possible to detect and locate both eavesdropping devices (bugs) and communication devices operating in the frequency band of the following standards: GSM900 / 1800, AMPS / DAMPS, CDMA one, CDMA2000, UMTS, DECT, IEEE802.15.1 (Bluetooth), IEEE802.11a (Wi-Fi 5GHz) , IEEE802.11b, IEEE802.11g (Wi-Fi 2.4 GHz), IEEE802.15.4 (ZigBee) and LTE (4G), as well as to assess radiation power level of these devices.

Technical Characteristics

Operating frequency range, MHz	0,1÷12000
Dynamic range, dB, at least:	
· 0,1÷440 MHz	70
· 440÷6400 MHz	55
· 6400÷12000 MHz	45
Sensitivity when measuring input signal level, mV, at least:	
· 0,1÷440 MHz	0,225
· 440÷6400 MHz	1,25
· 6400÷12000 MHz	2,25

Channels' sensitivity of detecting mobile communication devices, mV, at least:	2,5
Supply voltage from four AA batteries, V	6,0
Current consumption, мА, up to:	
· in search mode	180
· in microphone excitation effect mode	450
Dimensions without antenna, mm	130x34x87
Weight of the main block, kg	0,32

The Producer reserves the right to make changes to the device design without notice, which does not worsen its technical characteristics.

Controls and Indicators

Control elements of the device are shown in **Figure 1**. The product is equipped with a liquid crystal display, showing device's operation modes, level and frequency of the received signal, temporal and spectral diagrams of the input signal, type and level of the signal of the devices operating in the

frequency range of modern mobile communication standards, as well as threshold detection level and battery charge level.

The upper end wall of the device contains:

- Antenna connectors **ANT1** and **ANT2**;
- Connector afor headphone ;
- Volume control ;

Figure 1.

The rear wall of the device (Fig. 2) contains:

- Built-in speaker;
- Battery cover.

Figure 2.

Operation modes

Search Mode is the main mode used for searching and locating radiation sources.

In this mode, the device searches and locates eavesdropping devices (bugs) using continuous types of modulation for transmitting information. This mode also provides search and detection of the bugs as well as communication devices operating in the frequency band of the following standards: GSM900 / 1800, AMPS / DAMPS, CDMA one, CDMA2000, UMTS, DECT, IEEE802.15.1 (Bluetooth), IEEE802.11a (Wi- Fi 5GHz), IEEE802.11b, IEEE802.11g (Wi-Fi 2.4 GHz), IEEE802.15.4 (ZigBee) and LTE (4G).

Search Mode is responsible for the measurements of frequency and level assessment of the received signals in one of the four frequency bands 0,1 ÷ 75 MHz, 75 ÷ 440 MHz, 440 ÷ 6400 MHz and 6400 ÷ 12000MHz.

In this mode, the product identifies and assesses signal levels of the eavesdropping devices or

communication devices operating in the frequency range of the above mobile communication standarts.
The device makes it possible to localize simultaneous work of several bugs or mobile communication devices operating in different frequency bands of mobile communication standards.
Excitation Effect Mode is used to search for radio transmitters using acoustic feedback.

Operation procedure

Getting Started

- Insert the batteries into the battery compartment.
- Connect the supplied antenna for the frequency range from 0.1 to 440 MHz to ANT1 connector and the antenna for the frequency range from 440 to 12,000 MHz to ANT2 connector.
- Turn on the device by pressing the On / Off button  .
- The device is ready to start operating.

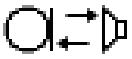
Search Mode

- Use the **CH** button (selection of channel to search for bugs) to enable bugs searching channel. If necessary, use the **ID** button to enable the channel searching for bugs and communication devices operating in the frequency range of mobile communications.
- Use the button of setting detection threshold - **SENS +** to enable acoustic alarm mode, which is 2-3 clicks per second.
- Set the desired level using volume control  .
- To illuminate display, use the button  .
- Search for information retrieval means in the controlled environment. To do this, slowly move the device near the possible location of the eavesdropping means: pieces of furniture, various household items, walling space, wiring accessories, etc.

When getting closer to the source of electro-magnetic radiation, the frequency of clicks increases!

- If you observe suspicious signals (increased frequency of clicks), perform their localization.
- Search for the information retrieval means sequentially in four frequency bands 0,1 ÷ 75 MHz, 75 ÷ 440 MHz, 440 ÷ 6400 MHz and 6400 ÷ 12000MHz. To toggle between frequency ranges use the **CH** button.
- When using mobile communications in the search area of the possible bugs' location, the LCD display shows the logo of mobile communication standard.
- To view power levels of radiation from mobile communications, switch to view mode by pressing **VIEW**.
- If necessary, in course of search operations, use the supplied headphones, after having connected them to the connector 🎧.

Excitation Effect Mode

- To switch the device to Excitation Effect Mode press **MODE**. The display indicates, the mode has been activated  .
- Set the volume knob to maximum volume level.
- Search for information retrieval means.
- This mode can only be used to search for bugs with continuous amplitude modulation type.
- This mode does not search or detect mobile communications (**ID** mode is automatically switched off and when shifting from Excitation Effect Mode, press the ID button to activate search mode to search and detect mobile communications).
- When enabling the ID mode, Excitation Effect Mode is automatically turned off.

Power supply

The device is powered by four AA batteries. While operation, the voltage is constantly monitored and displayed on the LCD.
Fully discharged battery must be replaced.

In box

- CORDON-2 field analyzer
- Telescopic antenna for 50 – 800 MHz frequency range
- Wideband antenna for 800 – 8000 MHz frequency range
- Headphones
- Network adapter
- User manual

Storage

Storage conditions:

- Ambient temperature from -10°C to +50°C
- Relative humidity 80% by +30°C
- Air pressure from 630 to 880 millimeters of mercury
- Absence of acid, alkali and admixture vapor in the premises

Transportation

Transportation of the device should be conducted in a shipping container by any kind of transport provided the protection from atmospheric precipitation. When transporting prevents the device from falling and sharp blows, they can cause mechanical damage.

Warranty

The manufacturer guarantees no-failure operation and all operating characteristics during 1 (one) year after the date of shipment by the producer provided the customer follows all the rules, stipulated in the documentation.
In case the manufacturer is responsible for malfunction or failure of the device, it is guaranteed to be fixed or exchanged free of charge during 15 days after the date of receiving faulty item.
The warranty is not valid in the following cases:

- operating instructions, storage and transportation rules were violated by the customer
- the device was damaged or seal was removed
- mechanical damage of the device
- Repairs or replacement of the device in the post-warranty period is to be made according to the additional agreement.

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