

# iPROTECT 1205

Pen-style RF detector



## Features

- Easy and quick detection of RF bugs of different types, including VHF/UHF transmitters, GSM bugs, wireless video cameras, Wi-Fi audio and video transmitters, vehicle transmitters, body-carried transmitters, etc.
- 3 working modes: Normal, Vibrating and Audio
- Wide frequency range 50-6000 MHz
- Powered by just 1 x AA battery
- 16-segment bargraph indicator
- Physical attenuator provides ability to locate strong RF sources
- Highly sensitive to real signals without being affected by weak background radio waves
- No sensitivity loss at battery discharge
- Low power indication
- High-quality detection scheme with professional RF isolation
- Reliable and tested device for different sweeping tasks
- Detects both analogue and digital transmissions
- Allows the operator to locate the source
- Vibrating signal for concealed indication of a high RF level and testing hard to access places
- Durable duralumin case
- Battery resource 10-20 hours

## Specifications

Frequency range	50MHz-6GHz
Controls	Power button, Mode button, ATT button
Indicators	1) 16-segment bargraph; 2) Vibration 3) Battery state (3 colors) 4) Working mode 5) ATT state
Battery resource	10-20 hours
Dimensions	172 x 19 mm
Frequency range	100 mA in stand-by mode 200 mA at a full bargraph
Power source	1 x AA battery (LR06)

## Theory of counter surveillance

According to the way of broadcasting, RF bugging devices can be divided as follows:

- FM / AM audio and video transmitters
- Digital transmitters with a continuous carrier
- Digital transmitters with storage, compression and short-time transmission
- Spread-spectrum transmitters
- Hopping transmitters (frequently changing frequency)
- Transmitters using the DVB (digital television) standard
- Transmitters using the GSM standard (GSM baby, GSM spy phone, etc.)
- Audio/Video transmitters using the 3G and 4G standards
- Audio/Video transmitters using the Wi-Fi/Bluetooth/DECT protocols
- Other transmitters using the standard communication or broadcasting protocols for sending information outside a premises (for example, a smartphone with special software or voice recorder with Wi-Fi access function, etc.)

According to the sort of transmitted information RF bugging devices can be divided into the following types:

- room or body-carried audio/video transmitters
- telephone line transmitters which start transmission when the receiver is picked up
- universal room/phone line transmitters, which work depending on the phone's receiver state (on/off-hook) and transmit both room acoustics and phone conversations
- vehicle audio/video transmitters (often with high power)
- GPS car trackers (receive GPS coordinates and then transmit them via GSM/GPRS/EDGE/3G/4G, typically periodical or delayed transmission). Additional functions can be audio/video transmission from within the car

### What is an RF detector?

An RF detector is a device which can show the general RF level in a current part of a premises. The sweeping procedure is performed by inspecting (probing) all places in the premises with the RF detector while watching the RF level. If there is a source of radio waves (legal or illegal), the RF detector will show an increased level on its bargraph indicator. The operator can find the physical location of the highest RF level by moving the detector in different directions in order to locate the transmitter.

Examples of legal transmitters are: DECT telephones or their base stations, Wi-Fi routers, Wi-Fi devices, working mobile phones (GSM, 3G, 4G, etc.), wireless video cameras, child surveillance systems, etc. Illegal devices, i.e. bugs can be: hidden video cameras, hidden GSM/3G/Wi-Fi transmitters, VHF/UHF transmitters, microwave transmitters, etc. The task of an RF detector is to show the operator all the RF sources that are present. The operator is then able to study all the sources and as such find any illegal transmitters if they exist.

## Parts description

Designed for simplicity, the iProtect 1205 contains powerful highly-sensitive elements in its circuitry, allowing the operator to conduct countersurveillance sweeping at a highly professional level. The advantage of RF detectors is their wide frequency coverage and their ability to show radio waves right near the source and therefore show the location of the transmitter.

The iProtect 1205 solves this task in the best possible way, accurately eliminating any background noises and indicating real signals. With the help of the 1205 the operator can track all RF sources and is therefore able to find the bugging device if there is one present.

The iProtect 1205 has a 16-segment bargraph indicator which allows the operator to see the slightest changes in level and as such accurately find the area with the strongest signal for location.

When it is necessary to decrease the sensitivity, typically during the location process, the operator can use the attenuator function ATT. The iProtect 1205 has a 'physical' (as in professional communications) RF attenuator of a level up to -20dB. The corresponding indicator will show the attenuator status.

The working mode (Vibrating/Audio/Normal) can be selected by the MODE button. The vibrating mode allows the user to 'feel' the increased level without actually watching the bargraph. This is convenient during the process of inspecting hard to access places like gaps under/behind furniture and construction. The Audio mode helps the user to identify signals in many cases.

The power can be turned on and off with the help of the button on the bottom tip of the detector. The battery compartment is also situated there.

When the battery becomes low the power indicator changes its color from green to orange. When the battery is about to discharge completely, the power indicator becomes red.

The device is powered by 1 LR06 (AA) battery. The resource time is 10-20 hours.



# Sweeping

## Sweeping in the premises

Before starting sweeping, you should perform some preparations. Firstly, it is necessary to consider the time of the sweep and the situation. Since there are lots of devices that are remotely controlled (particularly GSM/3G/Wi-Fi/etc.), it is recommended to carry out a sweep during working hours in real situations, when the eavesdropper most wants to listen and with the presence of sound in the room. In this case it may be necessary to arrange a fictitious meeting.

Start with the attenuator turned off. Enter the room while holding the iProtect 1205 and start probing objects and surfaces with its antenna (upper tip). Since some types of transmitters have extremely low power, it is recommended to carry out inspection at a distance of not less than 10-20 cm from the object. Move around the room in a selected direction – clockwise or counter clockwise and probe all the items/surfaces/gaps, etc. Pay special attention to the places where electrical wires are present as a potential bugging device could be powered by these. Do not forget about any objects situated in the middle of the room. Open all wardrobes, cabinets, etc. since a bugging device could be anywhere; test the ceiling (opening tiles if necessary) and the floor. Use a ladder if necessary to get as close to high points in the room as possible.

The target zone (the area around the most used work space in the room being checked) is the most important since sound around this area is clearest; therefore inspect it with as much care as possible.

An increased RF level on the bargraph and/or vibration from the 1205 are signs of radio waves, which can be produced both by a normal device like a Wi-Fi router or a real bugging device, for example by an FM VHF transmitter

The task of operator is to find the place with the maximum RF level and then to trace the transmitter. If it is impossible to find the strongest place and the signal is similar everywhere (for example near a window), it may be external interference. In modern cities there is lot of interference like communication base stations or broadcasting.

Please remember that interference may also get into a room from adjacent premises. It can be Wi-Fi routers, DECT base stations, conversations using GSM/3G/4G mobile phones in the neighboring flats/offices or VHF/UHF communications from a taxi car standing near the building. If the RF level is strong, the bargraph may show the maximum level. The attenuator function will be useful in this case. Turn it on and continue searching for the place with the maximum level, after finishing and returning to the normal sweep do not forget to turn off the attenuator

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After finding a place with a strong RF level go to a physical inspection. Disassemble the object and try to find the transmitter. Before making a decision understand what the object is, maybe producing RF waves is its normal function (like the Wi-Fi router). Do not stop sweeping even if a bugging device is found. Some other, better hidden, bugging devices may be still present in the room.

## Checking landline telephones and lines

Telephone boxes may be installed anywhere a phone line lays. It may be within the phone set, the phone outlet connecting box or cable. Most telephone bugs activate only when the receiver is off-hook. Therefore sweeping of landline phone lines is carried out only when the receiver is in this state. Start checking from the phone set. Place the iProtect 1205's antenna near the set and lift the receiver. Watch for an increase of the RF level. If you are testing a wireless phone, you will see a strong radio field on the display, as the phone uses radio communication between the receiver and its base. This is normal but such a situation makes it difficult to check wireless phones for the presence of bug inside it. Disassembling and inspecting the schematics of the telephone for the presence of non-standard parts or 'signs of modification' could be the solution in this case.

Move the antenna along the phone line while keeping it off-hook. Check all the outlets and communication boxes. If you have an assistant, ask him to lift the receiver and then hang it up repeatedly. If you see that the RF level changes when the line is activated and deactivated, this is a sign of a bug's presence. Try to locate the place where the RF level is highest and then perform a physical search.

## Inspecting people

There are many types of body-carried transmitters. They may broadcast conversations and (or) video signals. To test a person, carry the iProtect 1205 in a pocket or in the supplied case with the power turned on. Approach the person while sensing the vibration of the detector. If it starts vibrating, it means that the person is carrying a transmitting device. Note the detection distance of the device. Some weak signals such as Bluetooth can only be

detected at a distance of approximately 10 cm. Another way is to place the iProtect 1205's antenna under the table close to the place where the person will sit (in this case it will be necessary to make an RF extension cable for antenna). Watch the RF level on the bargraph when the target person sits or during the meeting. An increased level may be a sign of a transmitting bug. (If a mobile phone is ringing or somebody is talking by mobile phone it is normal for the device to show an increased level.)

## Inspecting vehicles

There are a number of bugs and trackers which can be installed in a car. Firstly, make sweeping inside the vehicle similar to the procedure for inside a premises. Then repeat the procedure probing the car from outside, above and under it. Keep the engine running.

GPS trackers (and also 3G/4G trackers) accumulate the route and send the data periodically, with a pre-programmed interval, more frequently when the car is moving. Therefore it is necessary to detect the transmissions while the car is moving and during quite a long period of time. Because of these reasons the detecting device must be very sensitive to detecting the RF waves from a car's interior during travel while the transmitter is situated somewhere outside the car. That is why we recommend applying the more sensitive Protect 1207i, which is better suited for finding GPS trackers.

## Detecting distance

VHF/UHF transmitter 5mW	50-100 cm
AC powered audio transmitter	50-100 cm
Baby watch 2.4 GHz	50 cm
Wireless camera (hidden) 50 mW	50 cm – 1 meter
GSM transmitter (Baby monitor) / GSM telephone	30-200 cm
Bluetooth	10-30 cm
Wi-Fi router	50-100 cm
Wi-Fi transmitter	30-100 cm
3G transmitter / telephone	20-60 cm
4G (LTE) telephone	20-60 cm

