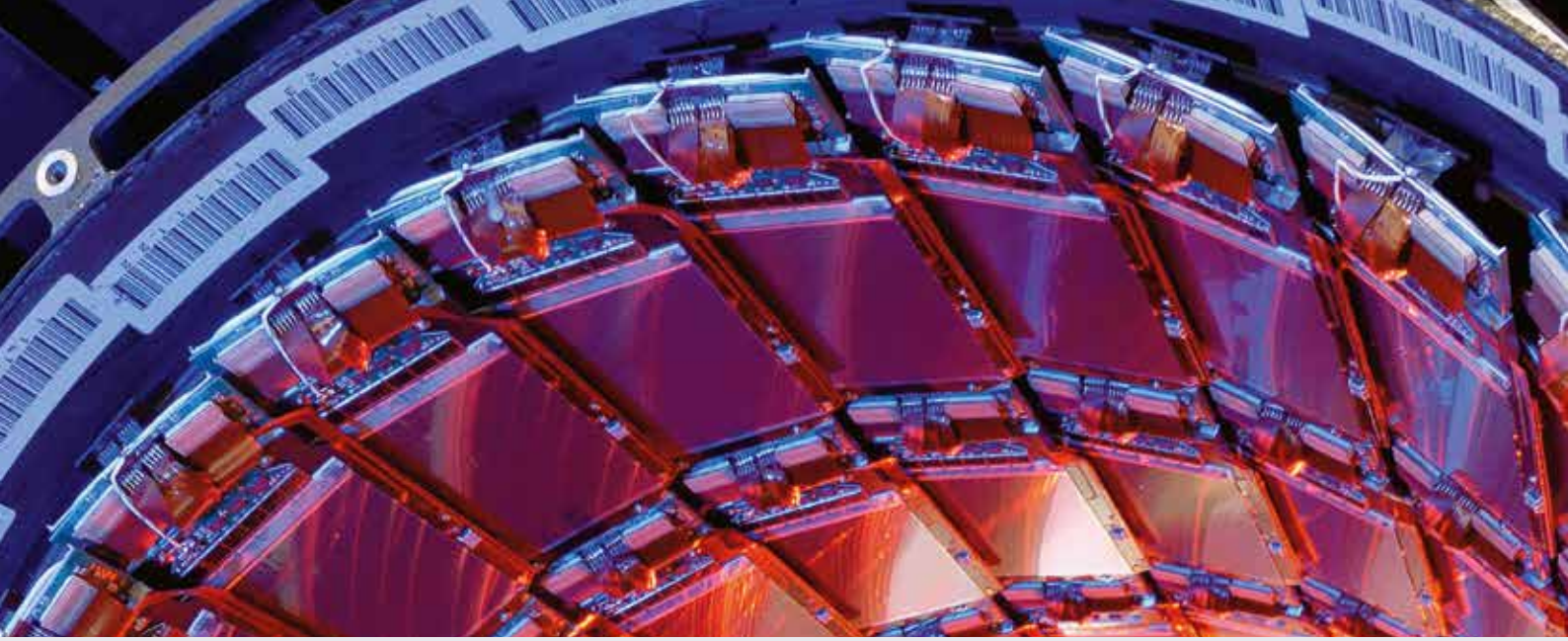

SIGNAL-T

CATALOG 2015

SIGNAL-T

Contact Details

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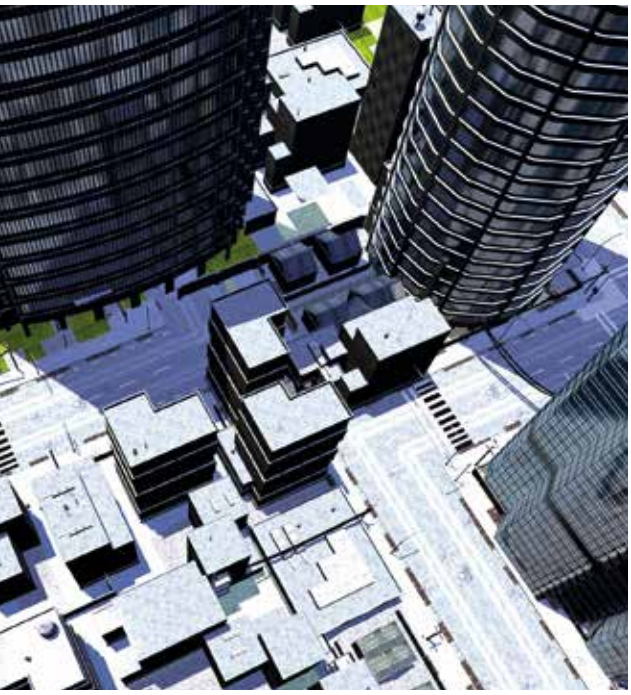
ST131 «PIRANHA II», ST 131N

Multifunctional detection devices

ST 154

Multi – zonal remote radiomonitoring system



ABOUT COMPANY

- The team of company «SIGNAL-T» has been working on Information Security market since 1993.
- The key directions of our activities are development and manufactures of equipment intended for detection of electronic eavesdropping devices.

ST 110
RF detector

ST 167 «Betta»
Search receiver

ST 165
Detector of wireless protocols

ST 168
Tester of cell phone and wireless jammers

ST131«PIRANHA II», ST131N Multifunctional detection devices

SIGNAL-T

PURPOSE

- **Multifunctional detection devices ST 131 PIRANHA-II and ST131N are intended for detecting and localization of eavesdropping devices as well as identification of natural and artificial sources of information leakage.**
- **ST131N has additional option of NON LINEAR JUNCTION DETECTOR IN WIRE LINE.**

The main types of the STM, for detection of which ST131 is designed are following:

The ST M with transmission of information by radio channel:

- Radio microphones including devices with storage and subsequent transfer of information (so called " burst transmitter") and Frequency Hopping Spread Spectrum (FHSS);
- Telephone transmitters, radio stethoscopes , and wireless video cameras;
- Mobile phones and modems of CDMA, GSM, UMTS, DECT, WLAN and BLUETOOTH standards used without authorization;
- Radio beacons for object movement tracking.

The STM that use AC power, telephone, TV, security and fire alarm lines for information transfer.

The STM transmitting information in optical infrared range and ultrasonic frequency range.

ST131«PIRANHA II», ST131N Multifunctional detection devices

DETECTION CHANNELS

ST131 has four detection channel which cover frequency range 10Hz -18GGz:

- **RADIO** **0.01-18000 MHz**
- **WIRE LINE** **0.003-1000 MHz**
- **OPTICAL** **770-1600 нМ**
- **ACOUSTOELECTRIC** **0.01-125кГц**

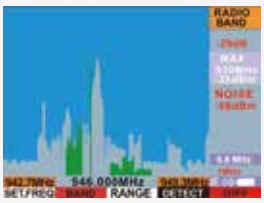
and option

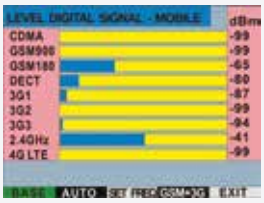
- **NON LINEAR JUNCTION DETECTOR IN WIRE LINES for ST131N.**

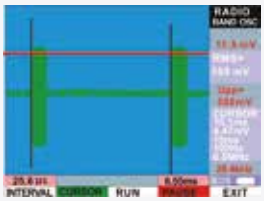
The ST131 is used in two basic use case:

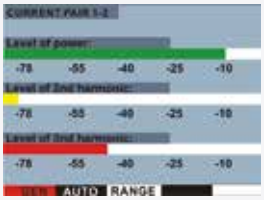
"HANDHELD" This variant is intended for operational movement on the survey area,

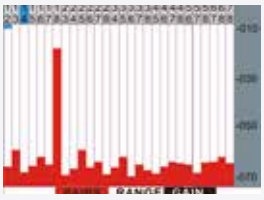
"STATIONARY" In this case the ST131 is used with PC running special software «ST131 ANALYZER PRO».

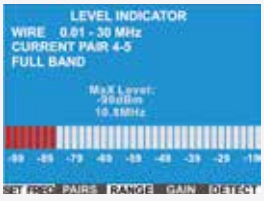






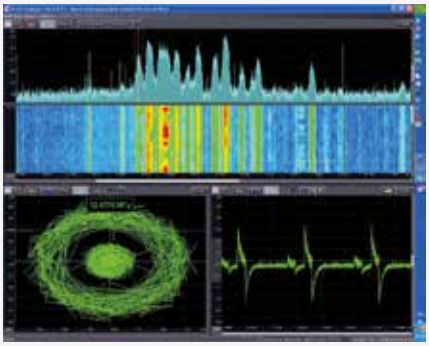




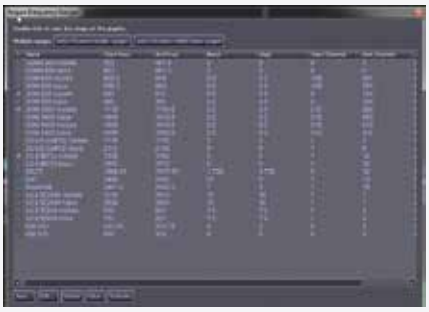


SIGNAL-T

SPECIAL SOFTWARE «ST131 ANALYSER PRO»



Spectral, oscillographic and vector analysis

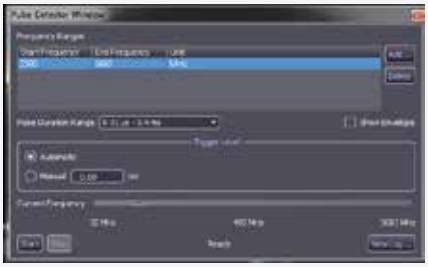


Data base of wireless standarts

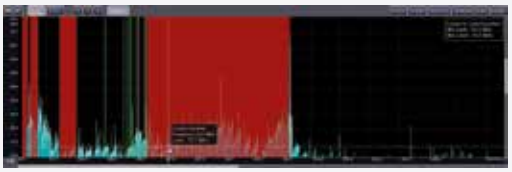
24H Monitoring mode

"ST131 ANALYZER PRO" software expands capabilities of ST131 for analyzing and processing of signals.

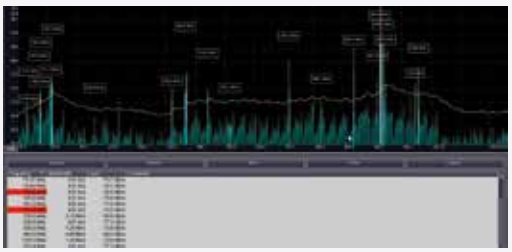
Firmware update via internet.



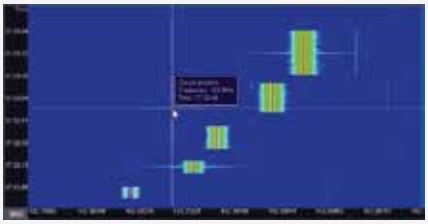
Detection
pulse signals



Using Templates



Automatic analysis
and classification
of signals



Waterfall

ST131«PIRANHA II», ST131N Multifunctional detection devices

COMPLETE SET

Main unit	1
UHF converter (ST131.UHF)	1
Wire line adapter ST 131. AWL (ST 131. AWLN for ST 131 N)	1
Wire line radio adapter ST 131. RAWL	1
Adapter «F- BNC-SMA»	1
Telescopic antenna	1
Broadband UHF antenna (ST131.UHF.A)	1
Test Leads	1
Power supply unit	2
Main unit supporting block	1
Main unit shoulder holder	1
Tripod	1
USB cable	1
AA batteries	8
Headphones	1
USB flash drive	1
User manual	1

ADDITIONAL COMPLETE SET

1. SHF antenna-detector ST131.SHF
2. Infrared probe ST131.IR
3. Magnetic field probe ST131.MAG
4. Testing device ST131.TEST

SPECIFICATION

DIGITAL SIGNAL PROCESSING MODULE	
Simultaneous processing frequency range, MHz	0.01-30
Input signal maximal level, dBm	5
Resolution of ADC	10, 14, 16
Number of FFT points	32768 (PC) 512 (main unit ST 131)
DDC filter bandwidth, MHz	0.001-6.8 MHz
Demodulators	AM, FM, SSB, TV
Demodulator bandwidth, kHz	6800, 150, 75, 40, 20, 10, 5, 2.5
RADIO CHANNEL	
Frequency range 1, MHz	30-4400
Displayed average noise level	
• Within the whole bandwidth, dBm	- 88 (- 100 for PC)
• Within DDC bandwidth 1 kHz	-110 (- 125 for PC)
Input signal maximal level, dBm	5
Speed Sweep GHz/s at least	10
Attenuator, dB	0-30 step 5
Frequency range 2, MHz	4000-18000
Threshold sensitivity, W/cm^2	2*10^{-10}
Beamwidth, degree	60-90
Frequency range 3, MHz	0.01-30
Displayed average noise leve in l the whole bandwidth, dBm	dBm -90 (-120 for PC)
WIRE LINE CHANNEL	
Frequency range 1, kHz	**0.3-15**
Displayed average noise level with the bandwidth, dBm	-115 (-140 for PC)
Common mode interference attenuator, dB	60
Maximal permitted input voltage, V	250
Frequency range 2, MHz	**0.01-30**
Displayed average noise level	
- Within the whole bandwidth, dBm	-90 (-120 for PC)
- Within DDC bandwidth 1 kHz, dBm	-125
Value of the gain input amplifier, dB	7, 13, 19, 25, 31, 37, 46
Input signal maximal level, dBm	10
Maximal permitted input voltage, V	250
Frequency range 3, MHz	30-1000
Displayed average noise level in the whole bandwidth, dBm	- 85 (- 100 for PC)
OPTICAL CHANNEL	
Frequency range, KHz	0.1- 30000
Dynamic range, dB	75
INFRARED PROBE ST131.IR	
Spectral range, nm	770-1600
Angle view, degree	30
ACOUSTOELECTRIC CHANNEL	
Frequency range, KHz	0.01-125
Displayed average noise level with the bandwidth, dBm	-105 (-125 for PC)
Input signal maximal level, dBm	-5
MAGNETIC FIELD PROBE ST131.MF	
Frequency range, Hz	30- 30000
Threshold sensivity A/M*Hz$^{1/2}$	2*10^{-6}
NON LINEAR JUNCTION DETECTOR IN WIRE LINE	
Frequency of test signal, kHz	150-220

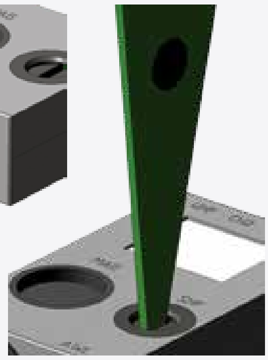
ST 131.TEST Testing device

SIGNAL-T

PURPOSE

- **The «ST131.TEST» is intended to control operability of ST131.**
- **The main unit has six control signal sources which provide a check of all detection channel as well as non-linear junction for check the nonlinear junction detector.**



COMPLETE SET

1. Main unit
2. Cable "RJ-45"
3. Cable "SMA-SMA"
4. Adapter "F-BNC"
5. Power supply

SPETIFICATIONS

OUTPUT "UHF":	
Frequency, MHz	200, 600,1000, 1750,3500
Level of signal, dBm	-45+/-5
Type of modulation	AM, FM, FHSS
Frequency of modulation, Hz	300, 600, 1000, 1500

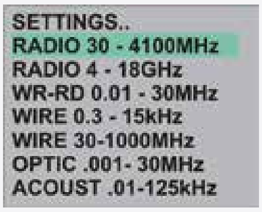
OUTPUT "CH2" AND SOURCE OF MAGNETIC FIELD "MAG":	
Frequency, kHz	1, 5, 15, 60, 120
Level of signal, dBm	-35+/-5

OUTPUT "AWL"	
Frequency, kHz	1, 3, 5, 10, 14, 500, 1000, 5000, 10000, 20000
Level of signal, dBm	-30+/-3

SOURCE OF SHF RADIO EMISSION "SHF"	
Frequency, GHz	8
Type of modulation	PCM

SOURCE OF INFRARED EMISSION "IR":	
Spectral range, by level of 10%, пм	750÷1100
Type of modulation	PCM

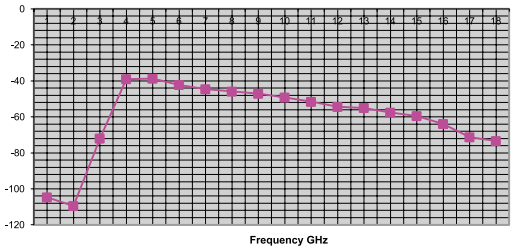
POWER	
Power	Li pol акк, 2.2A/h
Maximal current consumption, mA	<500
Dimensions of main unit, mm	110X60X28



Additional probes for ST131 PIRANHA II and ST131N

ST131.SHF SHF ANTENNA-DETECTOR

Frequency range, MHz	4000-180000
Threshold sensitivity, W/cm^2	2x10^{-10}
Directional pattern width, degree	30-60



ST131.IR INFRARED PROBE

Frequency range, MHz	0.01-30
Dynamic range, dB, not worse	75
Spectral range, nm	770-1600
Angle of sight, degree	30
Total length of stand, м	0,9
Maximal angle of turn, degree	180

ST131.MF MAGNETIC FIELD PROBE

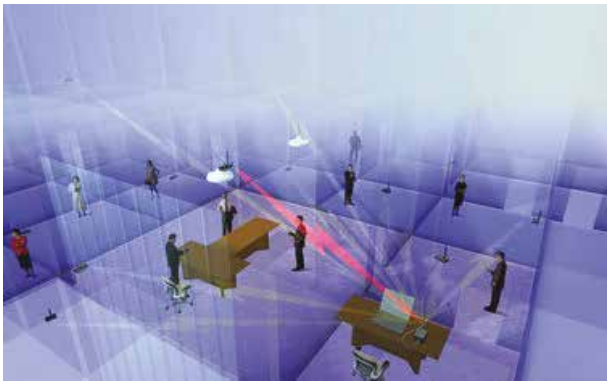
Frequency range, Hz	30 – 30000
Threshold sensitivity, A/m*Hz$^{1/2}$, less than	2x10^{-6}

ST154 Multi-zonal Remote Radio Monitoring System

SIGNAL-T

Purpose

Simultaneous monitoring from 1 to 128 local zones. No special training required. Many opportunities for selecting the configuration of the system. Data transmission over wired (WLAN) and wireless (ETHERNET) networks. The main purpose of the system is the detection of unauthorized transmission within the supervised area, which is carried out by special radio transmitting devices as well as legally operate radio communication devices.



These areas include::

- Meeting rooms and offices
- Exam rooms and testing facilities
- Prisons and correctional facilities
- Areas with limited use of cell phones, radios, etc.

ST154 detects:

- Cell phones and modems **(CDMA450, GSM 900, GSM 1800, 3G)***, wireless data transmitters **(4G, WLAN, BLUETOOTH 2.4 and 5 GHz)**, cordless phone systems **(DECT)** as well as special technical devices using these data transmission standards.
- Analog radio transmitters

*the settings of cellular frequencies, depending on the country and mobile operator, are provided.

GENERAL DESCRIPTION.

The main unit of the system is the control module (hereinafter CM) which performs the reception and analysis of signals.

Detection area of the CM depends on many factors and the estimated average value is 10 to 50 square meters.

Appearance of illegal signals is displayed by light and sound signaling directly on the CM or transmitted via ETHERNET or WLAN to the checkpoint computer.

The checkpoint computer can be any Windows-compatible desktop computer, laptop or tablet that has been installed special software

Round-the-clock monitoring of radio environment and the event log are provided

In addition, there is the search module (SM) that ensures determination the exact location of the radio transmission device.

ST154 Multi-zonal Remote Radio Monitoring System

Technical specifications of the CM:

Frequency range	25-6000
Threshold sensitivity, dBm	
CDMA450, GSM900, SM1800, 4G, 3G	-80 -100
Maximum input level, dBm	-5
Interfaces USB, WLAN, ETHERNET	
Supply voltage, V	5
Consumption current, mA, not more than	800
Dimensions without antenna mm	109x60x27

Technical specifications of the SM:

Frequency range	25-6000
Threshold sensitivity, dBm	
CDMA450, GSM900, 1800, 4G, 3G	-80 -100
The maximum input level, dBm	-5
Interface	USB
Indication	OLED display 160x128
Power supply:	Rechargeable Lithium-ion battery
Consumption current, mA, not more than	800
Dimensions without antenna, mm	109x60x27

Description of the CM

THE CM IS COMPOSED OF:

- radio-receiving unit with separate highly sensitive circuit for 3G band.
- transceiver for providing communication via WLAN or ETHERNET networks

THE SURFACE OF THE CM HAS:

- Connector for power supply *
- Power switch *
- SMA connectors for connecting RF antennas.
- LED alarm.
- USB connector
- RJ-45 connector **

* When using WLAN

** When using ETHERNET. In this case, the CM can be supplied by power from the hub using Ethernet cable (POE).

Parameters of light and sound alarm are set via the USB port.

Description of the SM

THE SM IS COMPOSED OF:

- radio-receiving unit
- receive signal strength indicator (RSSI)

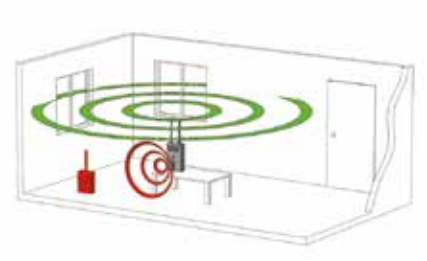
THE SURFACE OF THE SM HAS:

- charge connector
- power switch
- SMA connectors for connecting RF antennas
- receive signal strength indicator (RSSI)
- USB connector

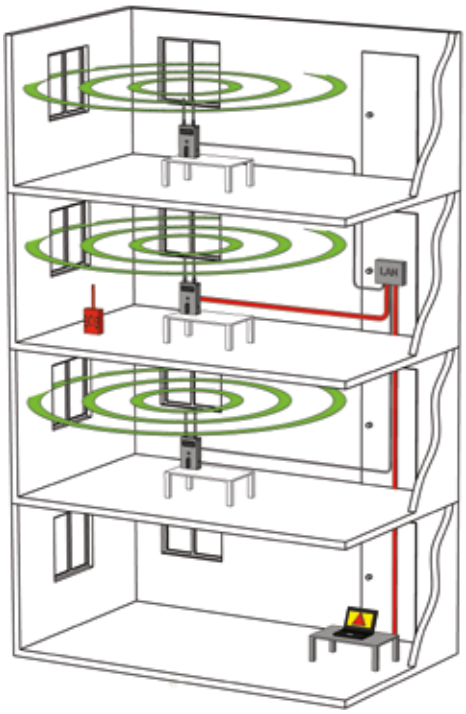
Configuration options of the system:

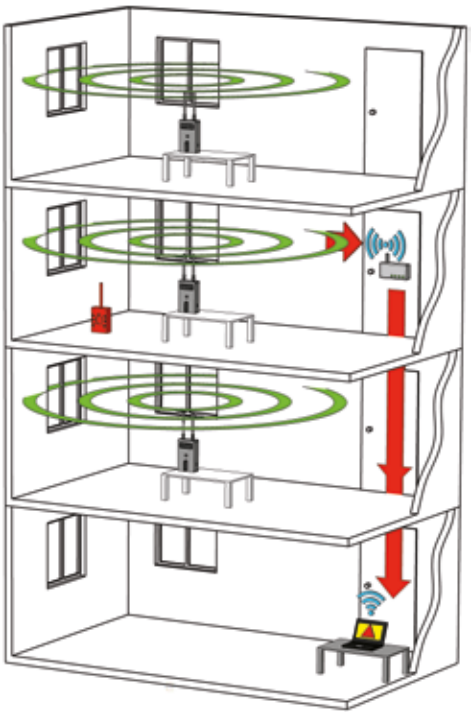
- **The minimum configuration consists of the only CM** with the light and audible alarm indication (ST154.A). Presetting is performed via the USB port.

  This option is intended primarily for the radio environment control within the one room.



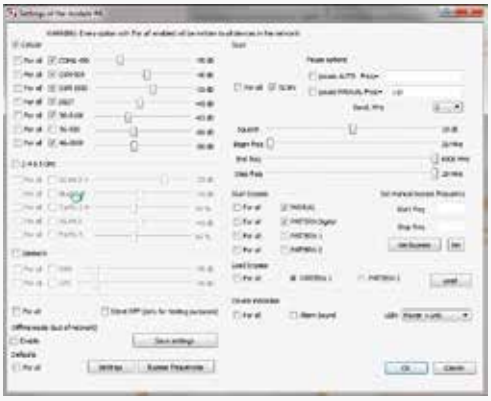
- **To cover more than one room in a multi-story building is a variant with alarm transmission to a checkpoint computer via WLAN (ST154.W) or ETHERNET** (ST154E or ST154E+POE) using a specially created or existing network.

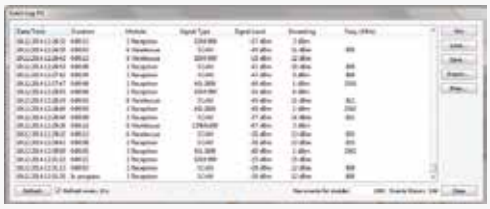


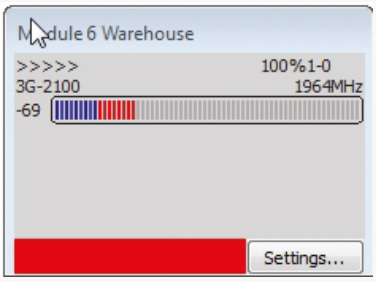


ST154
Multi-zonal
Remote Radio
Monitoring Systemя

Software







Configuration of the CM can be performed both individually and for the whole system. Also there are many adjustable options.

There are special patterns of the ignoring frequencies for the cellular, mobile and wireless data bands.

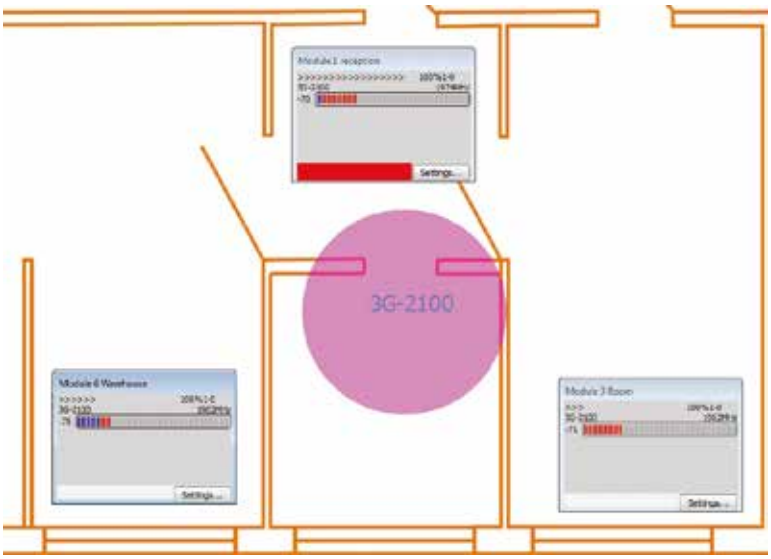
Creating your own lists of ignoring frequencies is available.

The direction finding mode for localization the source of transmission is available, when using multiple CMs

Each CM is assigned its virtual image that allows to watch changes of the radio emission in the real-time mode.
For convenience, virtual images are placed on the screen, for example, in accordance with the floor plan of the supervised area.

The silent logging mode is always enabled and there are a lot of options of sorting events depending on criteria you need.

Configuration the ETHERNET and WLAN networks.



ST167 «Betta» Search receiver

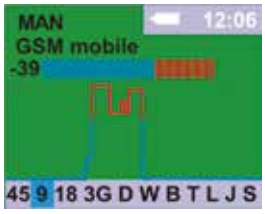
SIGNAL-T

PURPOSE

- **ST167 «Betta» is intended for the detection and location of radio transmitting bugging device.**

KEY FEATURES

- Selective reception to 6GHz.
- Special algorithms for detection and identification of transmission standards of digital data CDMA 450 GSM 3G 4G DECT, WLAN2.4, 5GHz and BLUETOOTH.
- Frequency measurement of analog signal.
- 24 hours monitoring with the creation of database of events. Work on schedule.
- Special mode detection jammers, including GPS/GLONASS.
- Sound control (AM and FM demodulation).



ST167 «Betta» Search receiver

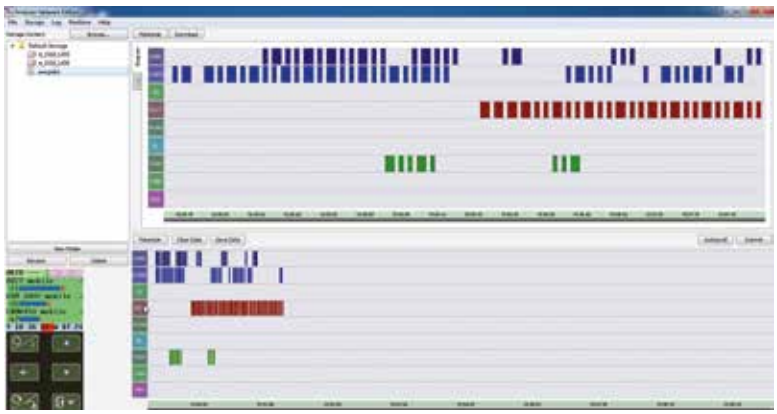
SPECIFICATIONS

Frequency range, MHz	25-6000
Threshold sensitivity, dBm	-80 (1000MHz) -55 (5000MHz)
Average dynamic range, dB	-65
Frequency measurements accuracy, kHz	10
Power Supply	Built-in Li-Pol Battery 3.7V (2.2A/h)
Average current consumption, mA	500
Interface	USB2.0
Overall dimensions main unit, mm	90X54X21

BASIC SET

Main unit	1
HF antenna	1
USB cable	1
Power supply	1
USB flash drive	1
Technical description and operating manual	1

- **SPECIAL SOFTWARE «ST167 ANALYZER»** allows:
  - — create a database of logged events;
  - — operate the device directly from a computer via internet or LAN;
  - — firmware update via internet.



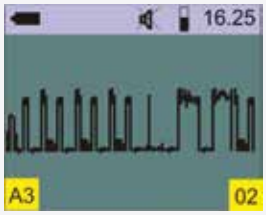
- **Indication of the level of the GSM, 3G, 4G base stations.**
- **Adjusting the frequency of 3G and 4G, depending on the region (country) and the service provider.**

ST110
RF detector

SIGNAL-T

PURPOSE

- **ST110 is designed for detection and location of radio transmitting bugging devices.**
  - Radio-microphones;
  - Telephone radio retransmitter;
  - Wireless stethoscope;
  - Wireless cameras;
  - Radio beacons for vehicles or cargos tracking systems;
  - Cell phones and modems of «GSM» and «DECT» standards;
  - Data transmission devices of «BLUETOOTH» and «WLAN» standards.



Principle of operation of ST110 is based on broad band demodulation of electrical field.

SEARCH

- Separate indication of continuous and inpulse signals,
- Displaying of identified signals of GSM, DECT, BLUETOOTH, WLAN,
- Frequency meter,
- Oscillograph,
- Timing diagram record.

MONITORING

- Signal information is saved in nonvolatile memory (9 banks, each for 999 events)
- Schedule 24Hr

ST110
RF detector

SPECIFICATIONS

Main Unit	
Frequency range, MHz	50-2500
Threshold sensitivity, dBm	minus 75 (50 MHz) minus 70 (1500 MHz) minus 50 (2500 MHz)
Dynamic Range of indication, dB	55 (50-2000 MHz) 40 (2000-2500 MHz)
Sensitivity of frequency meter, dBm	minus 35 (50 MHz) minus 50 (500 MHz) minus 20 (2500 MHz)
Frequency measurement accuracy, kHz	10
Cut-off frequency of LPF, MHz	750
Built-in power supply battery	Li-pol 3.6V
Consumption current, mA	65
Dimension, mm	90x54x21
Weight, kg, not less	0.15
SHF antenna-detector ST110.SHF	
Frequency range, MHz	2000-7000
Threshold sensitivity, W/cm^2	(2-9)*10^{-10}
Dynamic Range, dB	45
Consumption current, mA	25
Dimension, mm	D=72, L=16

THE COMPLETE SET

Main block	1
HF antenna	1
USB cable	1
Power supply/Charger	1
USB flash drive	1
User's Guide	1

ADDITIONAL COMPLETE SET

1. SHF antenna-detector «ST110.SHF»

SPECIAL «ST110 ANALYZER» SOFTWARE is designed for:

— view real time graphs of the operation on ST110;

— the ST110 remote full control using PC;

— extended settings assignment for MONITORING mode;

— load and display textual and graphical information of the operation in MONITORING mode;

— firmware updating via internet.

ST165 Detector of wireless protocols

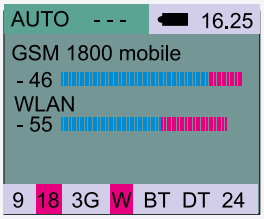
SIGNAL-T

PURPOSE

- **ST165 is Intended for the detection, identifying and location of mobile radio transmitters of cellular communication (CDMA, GSM, 3G, DECT) and wireless data transmission (WLAN, BLUETOOTH).**
- **Additionally is provided indication of level signal of base stations and intensity date exchange.**

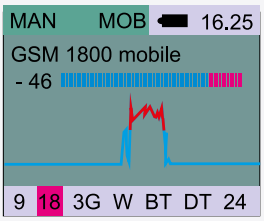
AUTOMATIC MODE

- This mode is intended for wireless bugging device automatic detection when signal exceeds the threshold which sets by user.
- Signal data is logged.



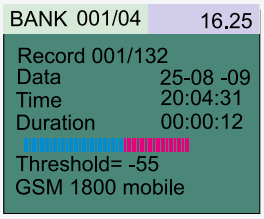
MANUAL MODE

- This mode is intended for location of mobile wireless devices.
- Timing diagram record.



ADDITIONAL FEATURES

- Control of additional unit for ALARM indication (Built in relay).
- External port for connecting additional device (for example ST165.CDMA).



ST165 Detector of wireless protocols

BASIC SET

Main unit	1
HF antenna	1
USB cable	1
Power supply	1
USB flash drive	1
Technical description and operating manual	1

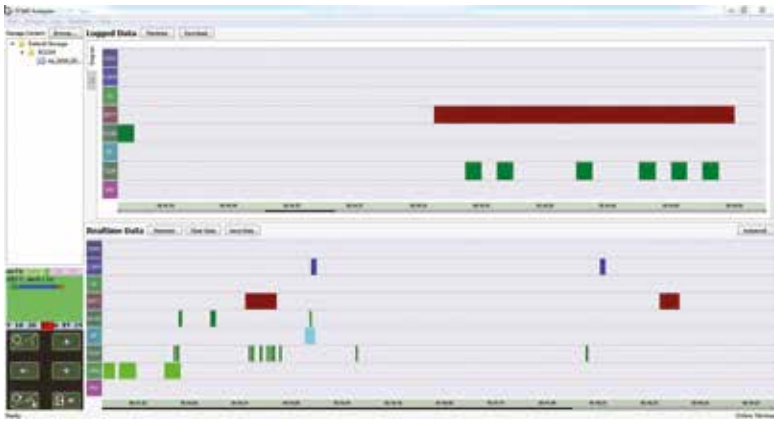
ADDITIONAL COMPLETE SET

1. ST165.CDMA

SPECIFICATIONS

Frequency ranges, MHz	453-468, 890-960, 1710-1900 1940-2145, 2400-2485
Threshold sensitivity, dBm	-75 (CDMA 450, GSM) -85 (3G) -70 (2.4GHz)
Average dynamic range, dB	70
Alarm setting range, dB	60
Indication	Color OLED display 169X128
Power Supply	Built-in Li-Pol Battery 4.3V (1A/h)
Average current consumption, mA	300
Interface	USB 2.0
Overall dimensions main unit, mm	90X54X21

- **SPECIAL SOFTWARE «ST165 ANALYZER»** allows:
  - — create a database of logged events;
  - — operate the device directly from a computer via internet or LAN;
  - — firmware update via internet.



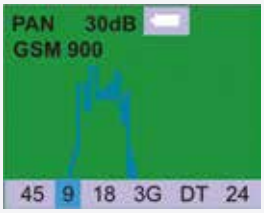
- **Adjusting the frequency of 3G depending on the region (country) and the service provider.**

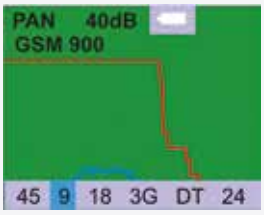
ST168
Tester
of cell phone
and wireless jammers

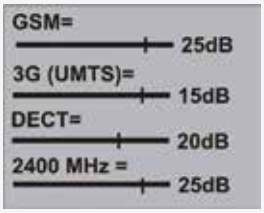
SIGNAL-T

PURPOSE

- **ST 168 IS DESIGNED FOR THE MEASUREMENT OF RADIO EMISSION JAMMERS INTENDED TO SOPPRESS SIGNALS OF THE CDMA 450, GSM, 3G, DECT, WLAN, BLUETOOTH STANDARTS.**
  - Definition of real area of suppression and associated frequency bands of controlled standards.
  - Easy to use.
  - Rapid results.







OPERATION ALGORITHM

- Measurement, processing and display of radio emission level of base stations and jammers in numerical and graphical form.
- Displays the result of the check in the form of an information line.

KEY FEATURES

- Selective reception of radio signals in the frequency ranges of selected standards.
- Comparison signals of the base stations and signal of jammer.
- Selection of suppression ratio.

ST168
Tester
of cell phone
and wireless jammers

SPECIFICATION

Frequency range, MHz	935-960, 1800-1900, 2125-2170, 2400-2485
Sensitivity, dBm	-75 (935-960 MHz) -85 (1800-1900 MHz) -66 (2400-2485)
Power Supply	Built-in Li-Pol Battery 3.6V (2.2A/h)
Average current consumption, mA,	210
Interface	USB2.0
Overall dimensions main unit, mm	90X54X21

BASIC SET

Main unit	1
HF antenna	1
Power supply	1
Technical description and operating manual	1

ADDITIONAL COMPLETE SET

1. ST168.CDMA

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