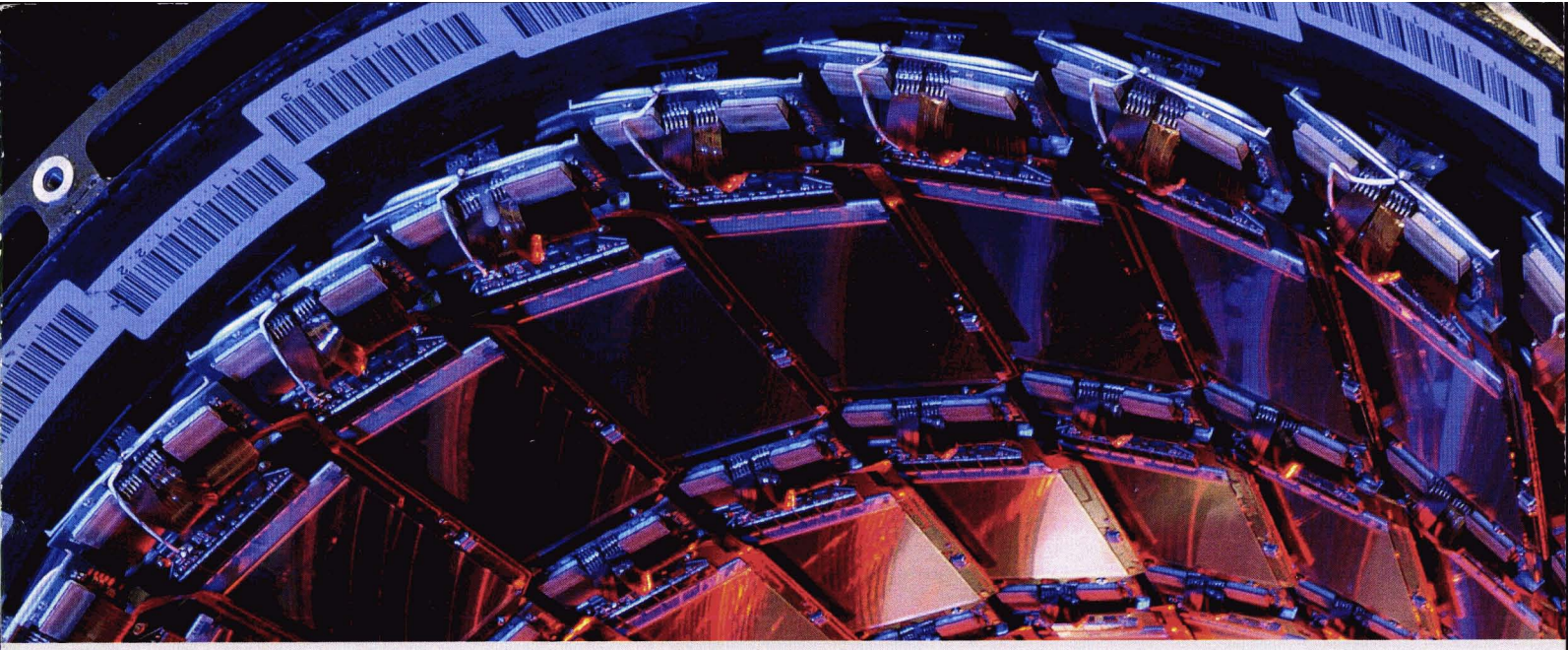

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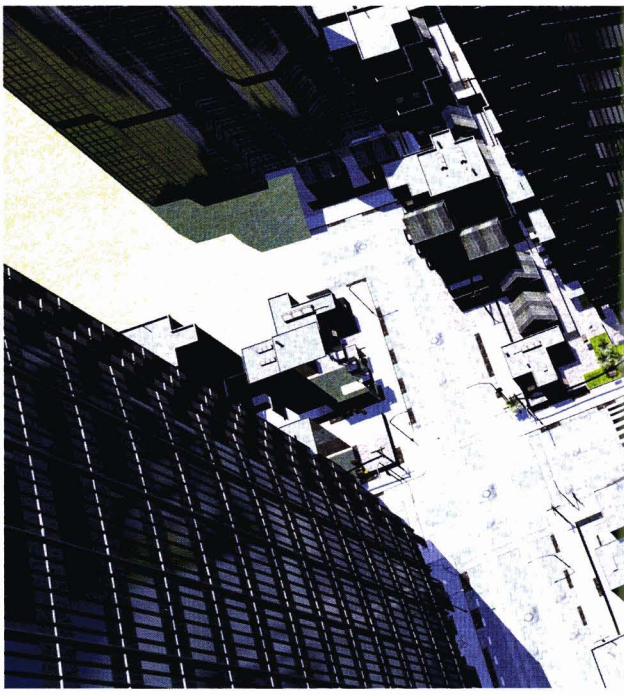
PRODUCT CATALOG 2013

SIGNAL-T

Contact Details

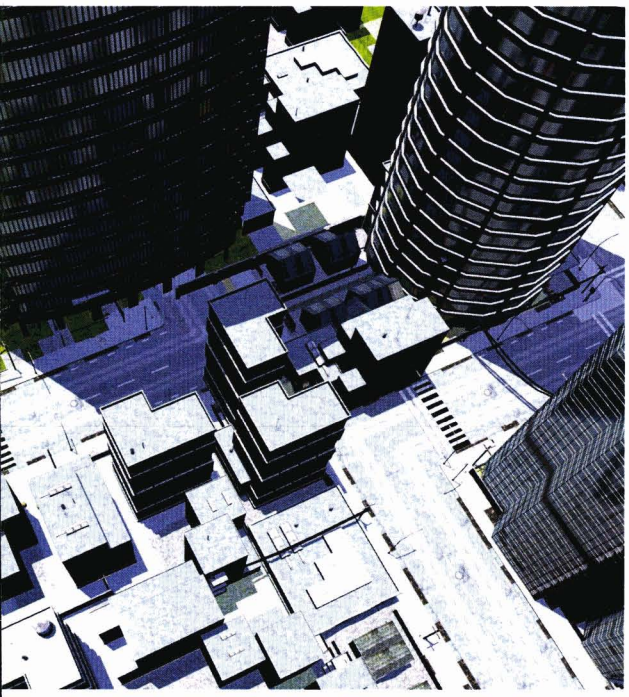
- SIGNAL-T
  160 Leninskiy av
  ST. Petersburg
  Russia 196247
  Phone: + 7(812) 677-10-75
  Fax: +7 (812) 677-10-74
- E-mail: info@signal-t.ru
  Internet: www.signal-t.ru



ST131 «PIRANHA II», ST131N
Multifunctional detection devices

ST034
Multifunctional detection device

ST033 «PIRANHA»
Multifunctional detection device



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.
- The competence of our personnel were acknowledged by License of Federal Service for Technical and Export Control.

ST167 «Betta»

Search receiver

ST110

RF detector

ST165

Detector of wireless protocols

ST168

Tester of cell phone and wireless jammers

ST154

Multi-zonal remote radiomonitoring system

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 STM 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

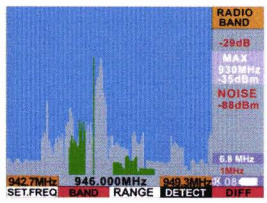
DETECTION CHANNELS

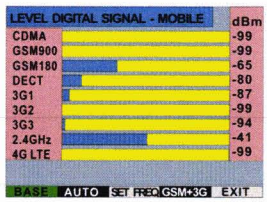
ST131 has four detection channel which cover frequency range 10Hz -18GGz:

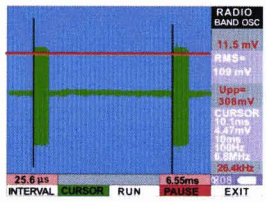
- **RADIO** — **0.01-18000 MHz**
- **WIRE LINE** — **0.003-1000 MHz**
- **OPTICAL** — **770-1600 нМ**
- **ACOUSTOELECTRIC** — **0.01-125кГц**

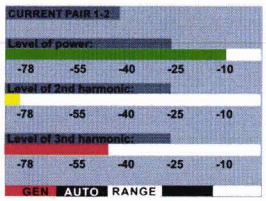
and option

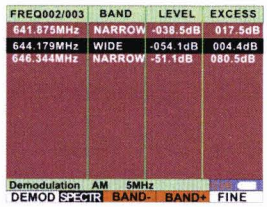
- **NON LINEAR JUNCTION DETECTOR IN WIRE LINES for ST131N.**

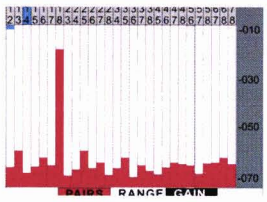


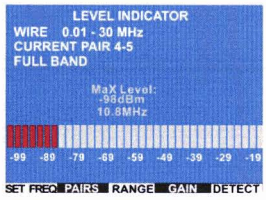












The ST131 is used in two basic use case:

"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».

ST131«PIRANHA II», ST131N Multifunctional detection devices

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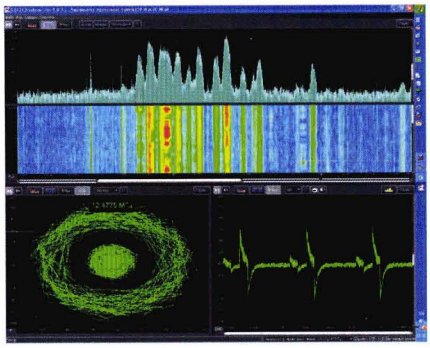
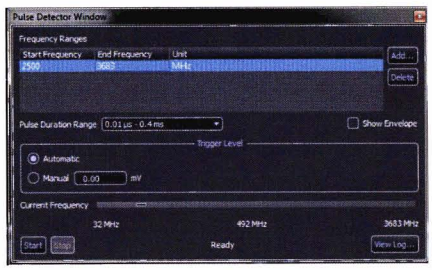
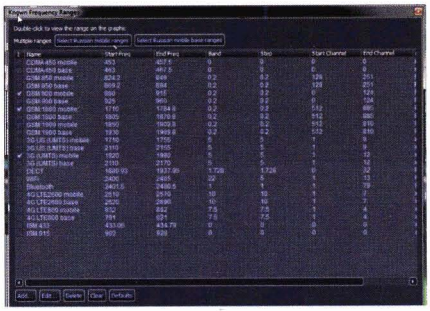
SPECIAL SOFTWARE «ST131 ANALYSER PRO»



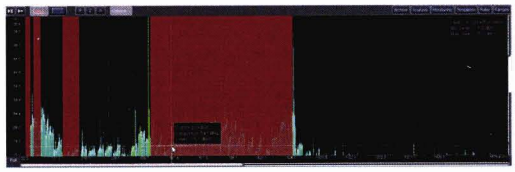
Spectral, oscillographic and vector analysis



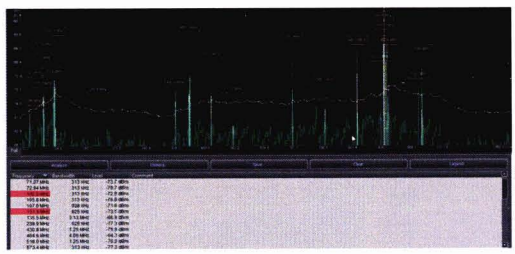
Detection pulse signals



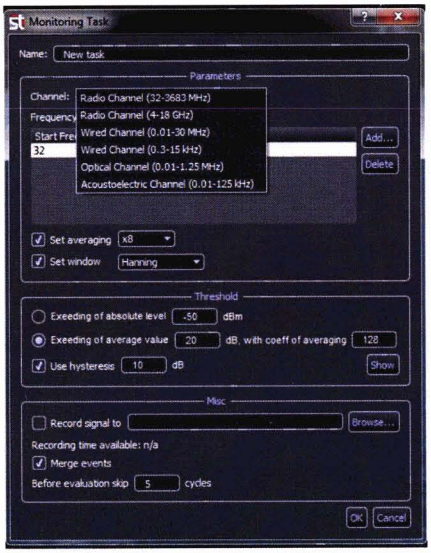
Data base of wireless standarts



Using Templates



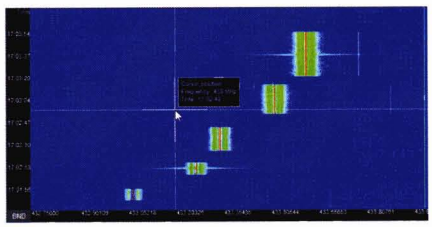
Automatic analysis and classification of signals



24H Monitoring mode

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

Firmware update via internet.



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 131N)	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	30-4100
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	$2*10^{-16}$
Beamwidth, degree	60-90
Frequency range 3, MHz	0.01-30
Displayed average noise leve in I 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$^{1/2}$	$2*10^{-5}$
NON LINEAR JUNCTION DETECTOR IN WIRE LINE	
Frequency of test signal, kHz	150-220

ST034
Multifunctional detection device

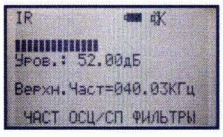
SIGNAL-T

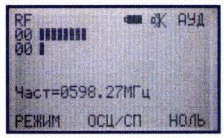
PURPOSE

- **ST034 is a multi-function device intended for detection and location eavesdropping devices.**

OPERATING MODES

- UHF DETECTOR –FREQUENCY METER
- SHF DETECTOR
- WIRE LINE ANALYSER
- IR DETECTOR
- DIFFERENCIAL AMPLIFIER
- MAGNETIC FIELD DETECTOR
- ACOUSTIC ANALYZER





Firmware updating via Internet.

COMPLETE SET

1.	Main Unit	1
2.	Universal adapter of wire line	1
3.	Telescopic antenna	1
4.	UHF antenna	1
5.	Test Leads	1
6.	Cable USB	1
7.	Power Supply unit	1
8.	Mini Cd	1
9.	User Manual	1
10.	Packaging Bag	1

ADDITIONAL COMPLETE SET

1. SHF antenna detector ST 03.SHF
2. Magnetic field probe ST 034.MF
3. Acoustic probe ST 034.A

ST034
Multifunctional detection device

SPECIFICATION

UHF DETECTOR - FREQUENCY METER	
Frequency range, MHz	20÷3000
Sensitivity on an input, dBm	< minus 50 (20MHz÷2000MHz)
	< minus 40 (2000MHz÷3000MHz)
Dynamic range of indication, dB	55
Sensitivity of frequency meter, dBm	< minus 30 (100MHz÷2000MHz)
	< minus 25 (2000÷2500MHz)
Error of measurement of frequency, %	0.01
Identified data transfer standards	GSM, DECT, WI-FI, BLUETOOTH
SHF DETECTOR	
Frequency range, GHz	2.5÷10
Threshold sensitivity, W/sm^2	$2.5*10^{-10}$
Dynamic range, dB	32
Type of antenna	logoperiodic
Polarization	Horizontal
Beamwith, degree	60÷90

SPECIFICATION

WIRE LINE ANYLASER	
Frequency range, MHz	0,05÷15
Sensivity, at s/n 10dB, mkV	<35
Bandwidth, kHz	20
Demodulation	AM, FM
Maximum allowable input voltage, V	250
DIFFERENTIAL AMPLIFIER	
Frequency range, kHz	0.3-12
CMRR, dB	>60
Input impedance, kOm	75
Input voltage noise, mkV	<2
Dynamic range, dB	50
Maximum allowable input voltage, V	250
MAGNETIC FIELD DETECTOR	
Frequency range, kHz	0,4÷12
Threshold sensitivity, T/Hz$^{1/2}$	10^{-11}
Dynamic Range, dB	50
ACOUCTIC ANALYZER	
Frequency range, kHz	0.3÷8
Dynamic Range, dB	50
IR DETECTOR	
Spectral range, nm	750÷1100
Frequency range, kHz	0.3- 300
Threshold sensitivity, W/Hz$^{1/2}$	$\leq 10^{-13}$
Angle of sight, degree	30°
POWER	
Power supply	Li - pol acc. 3.7V
Maximum consumed current, mA	<100
INTERFACE	USB
DIMENSIONS, MM	
Main Unit	125X62X28
Package	250X160X140
Weight Main Unit, kg	0.25

ST033 «PIRANHA» Multifunctional detection device

SIGNAL-T

PURPOSE

- **ST033 is a multi-function device intended to detect and locate eavesdropping devices.**

OPERATING MODES

ST033 «PIRANHA» is a multifunctional detection device intended for detecting and localization of the special technical means (STM) used for surreptitious obtaining of information.

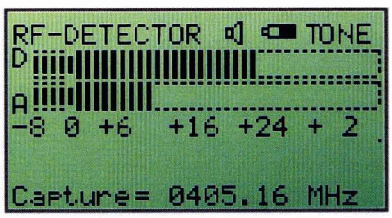
- UHF DETECTOR –FREQUENCY METER
- SHF DETECTOR
- WIRE LINE ANALYSER
- IR DETECTOR
- DIFFERENCIAL AMPLIFIER
- MAGNETIC FIELD DETECTOR
- ACOUSTIC ANALYZER

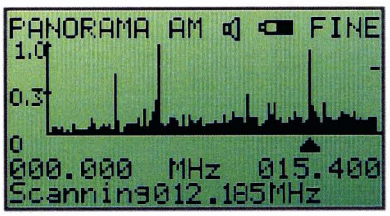
— Contextual help

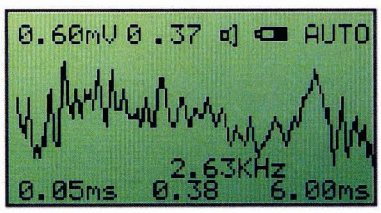
— The ST033 remote full control using PC

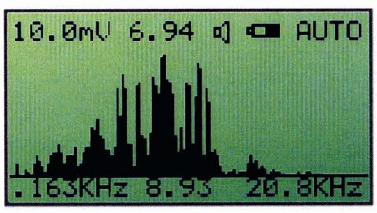
— Firmware updating via Internet

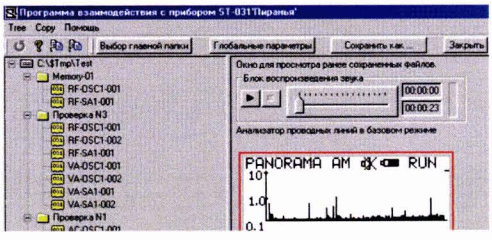
— Control of the scanning receiver











ST 033 «PIRANHA» Multifunctional detection device

THE COMPLETE SET

The main unit	1
Radio frequency antenna	1
SHF detector	1
Magnetic sensor	1
Infrared sensor	1
Telescopic antenna	1
"Needle", "220", "Alligator" clip type extensions	2x3
Headphones	1
Installation disc with software	1
Cable for connection to PC and scanning receiver	1
Cable for recording of audio information	1
Shoulder belt for the main unit, with a pocket for sensors	1
Main unit support	1
Power supply unit	1
AA type batteries	4
Technical Description and Operating Manual	1

ADDITIONAL COMPLETE SET

1. Differential amplifier «ST 03.DA»
2. Testing device «ST 03.TEST »

SPECIFICATIONS

OSCILLOSCOPE AND SPECTRUM ANALYZER	
Band width, kHz	22
Sensitivity at the input, mV	<10
Error of measurement of frequency %	1
POWER	
Power supply (DC), V	6(4 batteries, AA type)/220
Maximum consumed current, mA	300
Consumed current in operating mode, mA	150
DIMENSIONS, MM	
Main unit	180x97x47
Complete set	350x310x160

SPECIFICATIONS

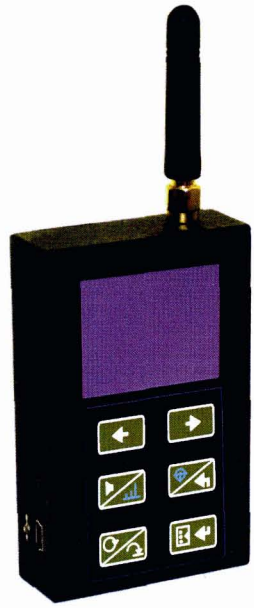
RADIO FREQUENCY DETECTOR-FREQUENCY METER		
Operating frequency range, MHz		30-2500
Sensitivity at input, mV	<1	(30MHz-1000MHz)
	<4	(1000MHz-1800MHz)
	<8	(1800MHz-2000MHz)
Dynamic range, dB		60
Frequency meter sensitivity, mV		<15
Frequency measurements accuracy, MHz		±0.01
Identified data transfer standards		GSM, DECT, WI-FI, BLUETOOTH
SHF DETECTOR		
Frequency range, GHz		2.5÷10
Threshold sensitivity, W/cm^2		$2.5*10^{-10}$
Dynamic range, dB		32
Type of antenna		Log Periodic
Polarization		Horizontal
Beamwidht, degree		60÷90
WIRE LINES ANALYZER		
Scanning range, MHz		0.01-15
Sensitivity for signal/noise ratio 10 dB, mV		<0.5
Scanning increment, kHz		5(1)
Scanning speed, kHz/s		50-1500
Band width, kHz		10
Detection modes		AM, FM
INFRARED RADIATION DETECTOR		
Spectral range, nm		770-1100
Threshold sensitivity, W/Hz$^{1/2}$		10^{-13}
Angle of sight, degree		30
Band width of detection, MHz		3
MAGNETIC FIELDS DETECTOR		
Frequency range, kHz		0.3-10
Threshold sensitivity, A/(m*Hz^2)		10^{-5}
DIFFERENTIAL AMPLIFIER		
Gain, dB		22±1
Input voltage noise, mkV		<2
Dynamic range, dB		>70
Input impedance, kOhm		>200
CMRR, dB		75
Operating frequency range, Hz		200-8000
ACOUSTIC CONVERTER		
Frequency range, kHz		0.3-8
Sensitivity, mV/Pa		>5

ST167 «Betta» Search receiver

SIGNAL-T

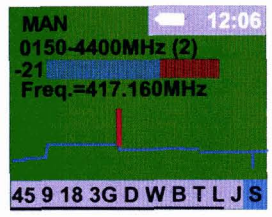
PURPOSE

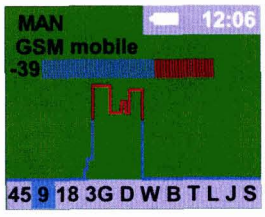
- **ST167 «Betta» is intended for the detection and location of radio transmitting bugging device.**

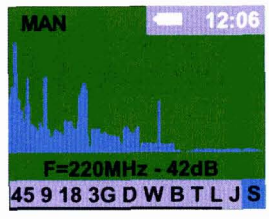


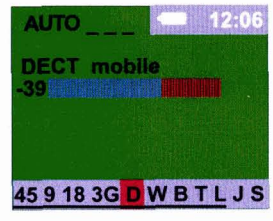
KEY FEATURES

- 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

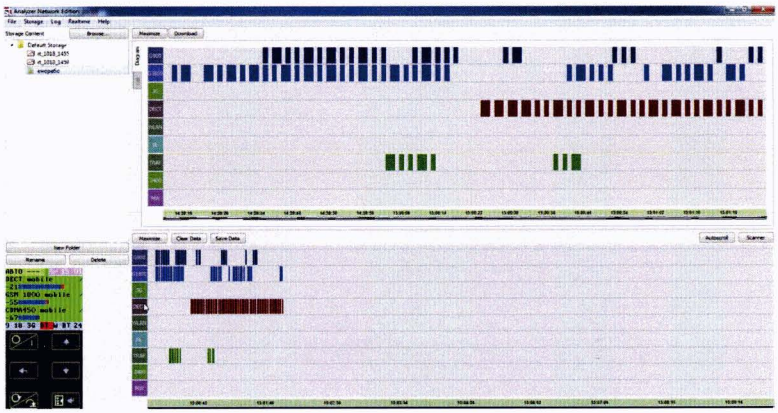
SPECIFICATIONS

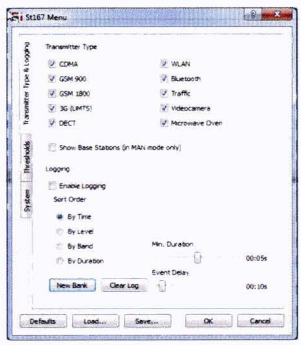
Frequency range, MHz	25-6000
Threshold sensitivity, dBm	-80 (1000MHz) -55 (5000MHz)
Average dynamic range, dB	-65
Frequency measurements accuracy, kHz	10
Power Supply	Built-in Li-Pol Battery 3.7V (2.2A/h)
Average current consumption, mA	500
Interface	USB2.0
Overall dimensions main unit, mm	90X54X21

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.

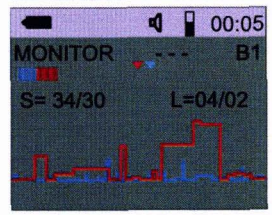
ST110
RF detector

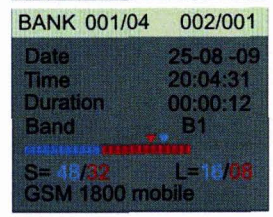
SIGNAL-T

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.

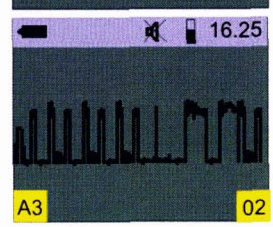
Principle of operation of ST110 is based on broad band demodulation of electrical field.





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/cm²	$(2\text{-}9)*10^{-12}$
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

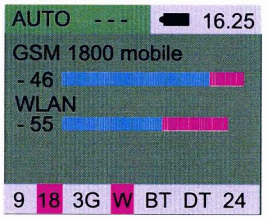
SIGNAL-T

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.**

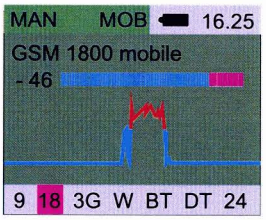
AUTOMATIC MODE

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



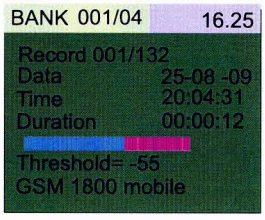
MANUAL MODE

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

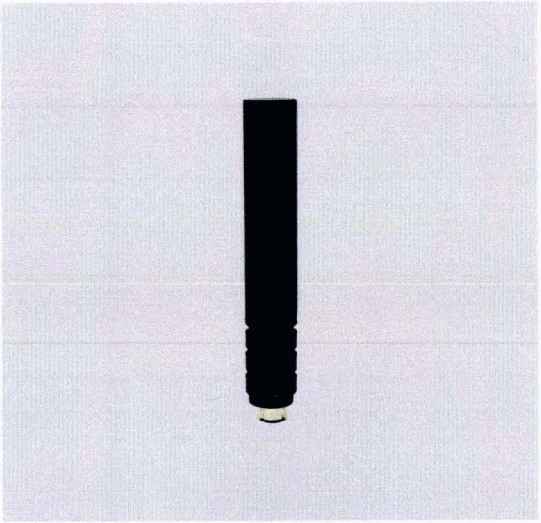


ADDITIONAL FEATURES

- 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.

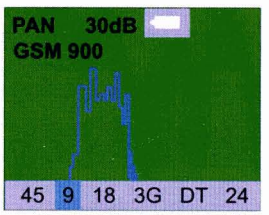
ST168
Tester
of cell phone
and wireless jammers

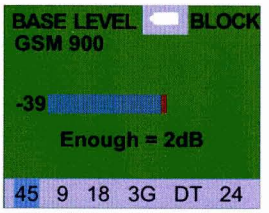
SIGNAL-T

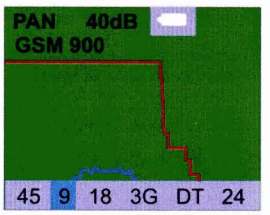
PURPOSE

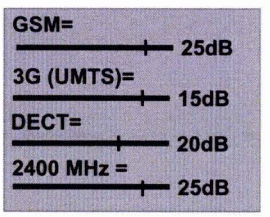
- **ST 168 is designed for the measurement of radio emission jammers intended to suppress signals of the CDMA 450, GSM, 3G, DECT, BLUETOOTH WLAN standards.**
- **Definition of the real area of suppression and associated frequency bands of controlled standards.**

- Easy to use.
- Rapid results.









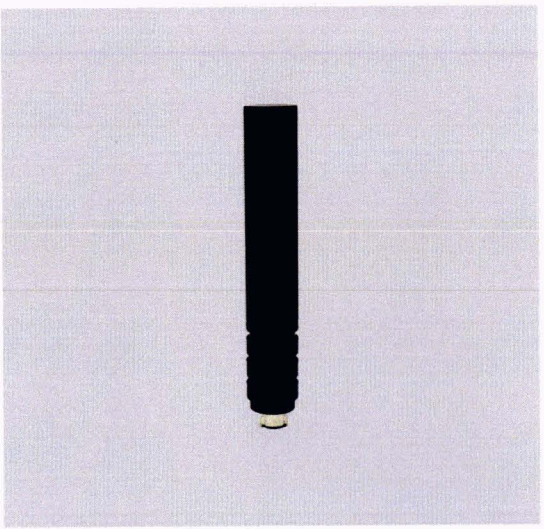
OPERATION ALGORITHM

- Measurement, processing and display of radioemission level of base stations and jammers in numerical and graphical form.
- Displaying 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



SPECIFICATIONS

Frequency ranges, MHz	925-960, 1800-1900, 2125-2170, 2400-2485
Sensitivity, dBm	-75 (1000MHz) -60 (2000MHz)
Dynamic range, dB	60
Frequency meter sensitivity, dBm	- 50
Frequency measurements accuracy, MHz	0.1
Power Supply	Built-in Li-Pol Battery 4.3V (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
Power supply	1
Technical description and operating manual	1

ADDITIONAL COMPLETE SET

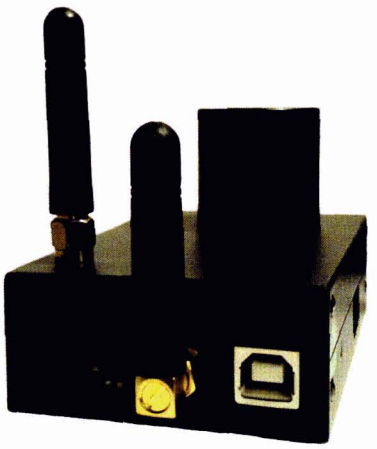
1. ST168.CDMA

ST154
Multi-zonal remote radiomonitoring system

SIGNAL-T

PURPOSE

- **Detection and location of radio transmitting bugging devices including devices that use CDMA, GSM, 3G, 4G and WLAN protocols.**
- **Special mode is the detection of pulsed transmitters.**



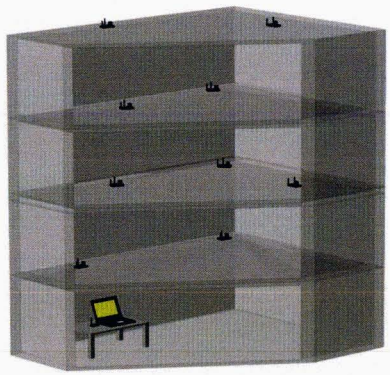
FEATURES

- The main use case is a stationary installation, but provides operational use with the time of preparation for work no more than half an hour.
- While operation the system does not require special skills.

DESIGN AND OPERATION

- The composition of **ST154** includes MODULES provide reception of radio signals in the near-field and a PC with the software as a control post.
- The number of MODULES is determined by the area of the controlled zone and can operatively be changed during operation.
- The detection area MODULES depends on the type of detected devices, set the detection threshold, other factor and makes from 1 to 50 meters.
- The transmission of information from the module to the PC carried out by three different ways:
  - on the radio channel
  - on the wire line
  - on the ETHERNET

ST154
Multi-zonal remote radiomonitoring system



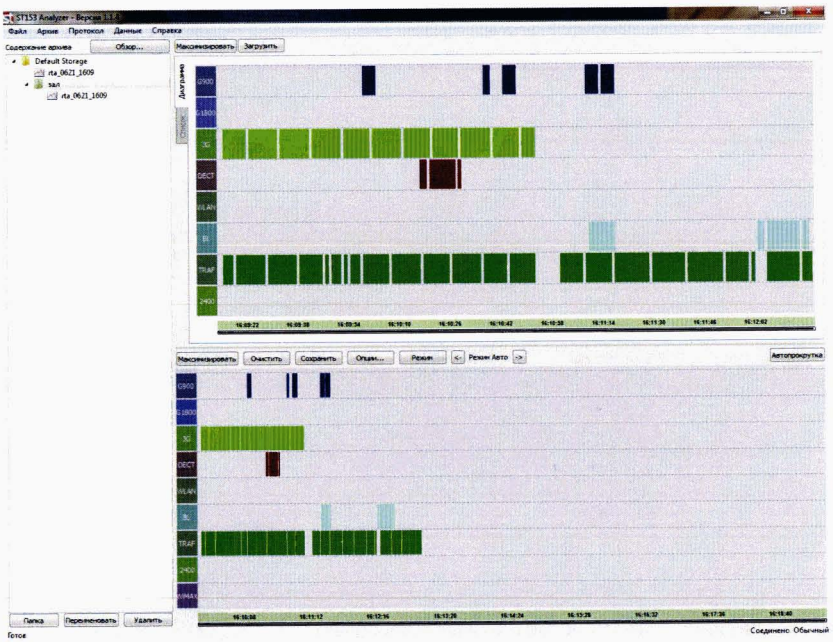
SPETIFICATION OF MODULE

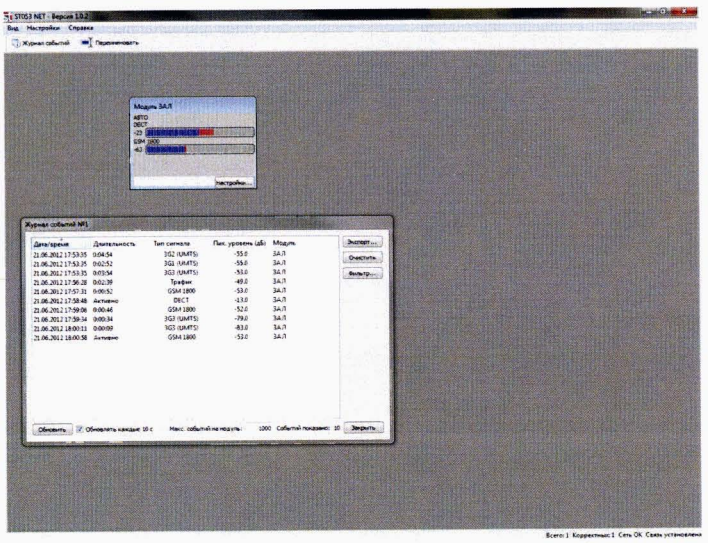
Frequency range, MHz	30-6000
Threshold sensitivity, dBm	-75 (CDMA 450, GSM, 4G) -85 (3G)
Threshold range detection, dB	60, step 1
Internal power supply	Li-Pol Battery 4.3V (2.2A/h)
Overall dimensions, mm	90X54X21

BASIC SET

Base MODULE	1
MODULE	from 1
Power supply	from 1
USB flash drive	1
User manual	1

- **SPECIAL SOFTWARE «ST154 ANALYZER»** allows:
  — to create a basic spectrum template of signals automatically by using special algorithms.





- When you work in real-time mode, indication of the detection of radio emission is provided with displaying the detection zone. In stand-alone mode provides 24 hour monitoring with conducting the event log.

SIGNAL-T

SIGNAL-T
160 Leninskiy av, ST. Petersburg, Russia, 196247
Phone: + 7(812) 677-10-75
Fax: +7 (812) 677-10-74
e-mail: info@signal-t.ru
www.signal-t.ru