CATALOGUE 2010

Equipment and technologies for security

NeoSoft
2010

Development, production and advancement on the world-wide market high quality and performance equipment, based on long-range outlook technologies, for various problems, connected with fighting against terrorism and also provide information protection and security for people and organisations.

Contents

1. GSM systems

1.1 Portable GSM communication system

Specialized GSM system is intended for providing GSM communication in a local territory. It may be useful for rescue parties, VIP persons, travelers, seamen, mountain-climbers, expeditions, corporation employees & etc.

Features:

A system that provides internal corporate GSM communications for employees and clients using own handsets;

A system that provides GSM communications for VIP persons and convoy in case of using intelligent jamming;

A system that provide GSM communication in case of earthquakes and terracts;

A system that provide corporate GSM communication for travellers, seamen, mountain-climbers, expeditions etc;

A system that provide GSM-VOIP communication;

A system that will allow routing of handsets abroad through third party countries across non interceptable and non decryptable internet channels.

The system consists of a special GSM Base unit (850/900/1800/1900 Mhz) and personal computer (notebook).

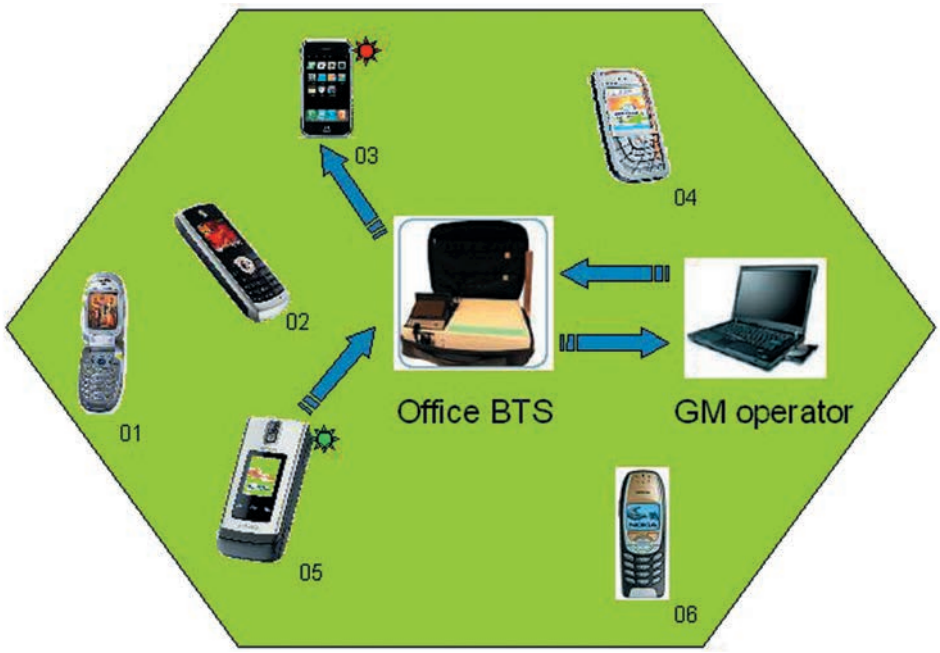
The system may be equipped by dual band multi channel GSM Active Stations for external communication with the real GSM provider or any other devices for communication via internet.

Single Active GSM Private Network works as follows:

Under normal circumstances the user handset will log onto the real network through the nearest/most powerful Base Station;

Whilst within the protective bubble of the NeoSoft Private network, the user handset will log onto the NeoSoft GSM Base Unit and into the Private Network;

When the real network is damaged or absent then our system provides communication for a group of people, located in the working area.



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VPN Private International Network via internet operates as follows:

Each country will have an individual GSM Base Unit system with unique IP addresses for each system part;

Each individual system is connected to the internet through a broadband router;

The VPN server, can be situated in any country and can route each set of cell phones to a third country, creating a circular route through the internet;

All overseas handsets can now operate through a third party country through secure internet;

All calls are now removed from the networks that they should be registered to and foreign surveillance cannot find them.

To operate the Portable BTS one needs to have access to any type of wireless network with a speed higher than GPRS.

After switching the GSM Base unit on and automatic connection via the wireless network module with the Operator PC, the system is ready to work. Usually it takes 2-5 minutes to start operation of the Portable BTS module along with the NeoSoft GM System.

New battery pack allows operation of the Portable BTS up to 10h with maximum power output.

Due to the small size, the GSM Base unit can be packed in any model of hand carry cases of customer choice including shock-proof cases.

Basic elements

Basic elements for each configuration type of the NeoSoft system are:

Notebook Computer with pre-installed software with power supply;

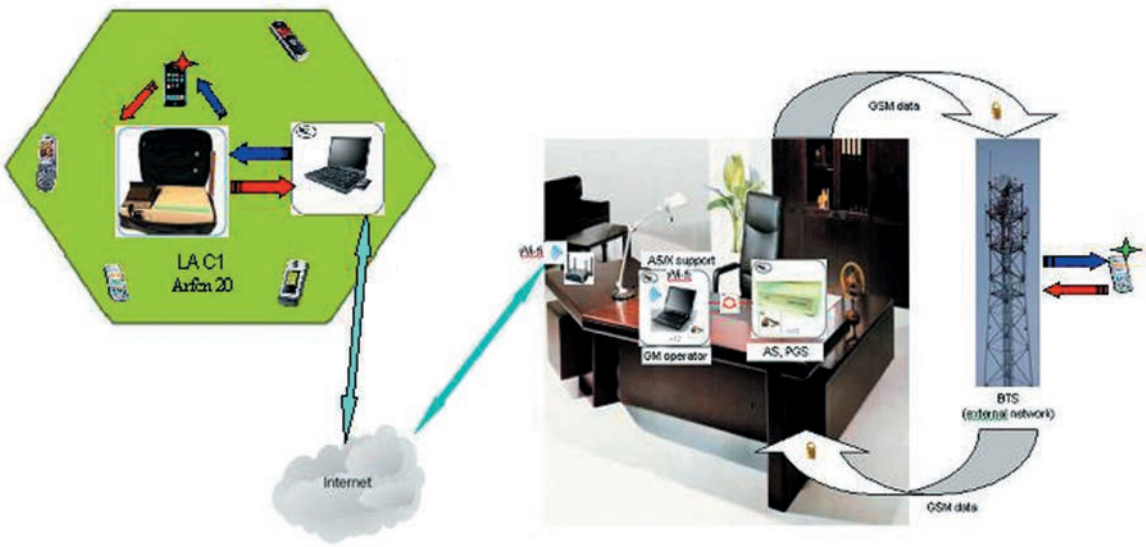
Portable or stationary NeoSoft GSM Base unit (one or several) with power supply;

or

GSM aerials

or

User s Manual.



Optional elements

Optional elements for the NeoSoft system are:

Active Stations unit (one or several) with power supply;

or

Notebook Computer with pre-installed VPN server software with power supply;

Gateway PC for internet connection NeoSoft system network devices (one or several);

Directional aerials (one or several);

Combiner band 900 or/and band1800 (one or several);

or

Carrying Case;

Directional finder (case or body aerials variant) with control unit, headphones;

or

Set of LAN and RF cables.

Technical Specifications

Frequency Range	850, 900, 1800, 1900 MHz
Power supply	
GSM Base Unit:	
Stationary	24 V
Portable	12-16 V
GSM Active stations unit	12-16 V
Personal computer	20 V
External battery (only portable)	capability to autonomous operation up to 10 hours
Output power	0,1 - 10 Watts
Connection via LAN or WLAN	Yes
Operation Range	50..1500 m
Dimensions portable	
GSM Base Unit	290 x 260 x 75 mm
GSM Active Stations unit	290 x 260 x 75 mm
Equipment	Personal Computer (Notebook), Portable PC (OQO), Portable Base unit, Battery, GSM Aerials , Active Stations unit
Quantity of registered employees	Unlimit (recommended 50)
Quantity of parallel encrypted conversations	1..6 for 1 Active Stations unit
Incoming calls, sms etc	yes

1.1.1 Embassy defender

System overview

A system to create a private network for GSM conversations:

- local network;
- country network;
- international network.

A system that uses a secure VPN Internet network to make interception impossible;

A system that will allow routing of handsets abroad through third party countries across non interceptable and non decryptable internet channels;

A system that will allow secure monitoring without the need of outside department resources;

A system that can allow global calls from controlled station to controlled station to be carried out with total invisibility from the real local networks.

What is the basis of this system?

The new secure VPN network is based on NeoSoft GSM Intercept technology;

The system consists of a network of special GSM 850/900/1800/1900 Mhz Base units and a series of dual band multi channel GSM Active Stations all linked together through a single VPN server based at the client HQ.

Our system is supplied as multiples of the following components:

850/900/1800/1900 MHz GSM Base Station Units;

850 or 900/1800 or 1900 MHz 4 or 6 Channel GSM Active Stations;

NeoSoft GSM VPN Secure Server Operating System installed on choice of PC hardware;

Notebook computer with software;

Directional aerial set.

Operational overview

The main idea of the NeoSoft "Embassy defender" operation is as follows:

In the embassy territory we install GSM Base Station unit which can be tuned to the same MCC-MNC values as accepted in the native country. With the help of special NeoSoft software it is possible to register only embassy employees.

In the native country it is recommended to install gateway PC in order to connect Active Station unit with the embassy private network.

Thus, the Active Station unit is closely connected with the embassy GSM Base Station unit and due to this connection with the help of the NeoSoft special software each embassy employee will be registered in his native country. Moreover he will pay for this conversation as per the native country provider tariff.

As a result, nobody can intercept conversations because the embassy GSM Base Station unit is not connected with the foreign GSM provider and any other person who wants to register in this private network will be diverted into the real external network.

Functional diagram of the "Embassy defender" by NeoSoft is represented below

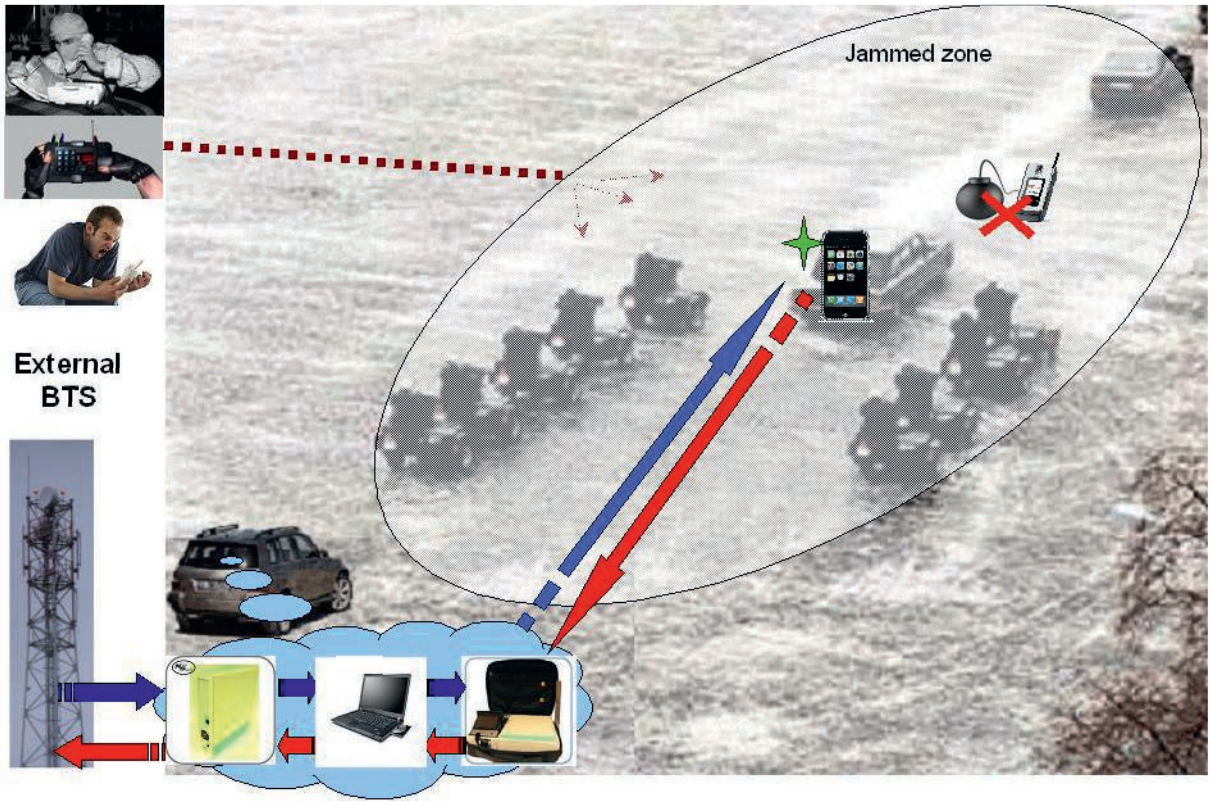
1.1.2 VIP communications

In VIP convoy practice there is the situation where any communication is blocked because all radio frequencies are jammed in order to prevent radio bombs remote activation.

In this case VIP communication support became a very important task.

In the basic configuration our system provide GSM communication in case of intellectual jamming (one channel – for BTS is not jammed. The number of this channel can be dynamically changed before a trip).

The system provide registering VIP handset and reject all other handsets from the local network. A special car with portable GSM communications system by NeoSoft follows the convoy and support VIP GSM communications.



1.1.3 Victim recovery

In hostage situations our portable GSM communications system is aimed to search, detect and possible contact with GSM mobile station owner in the area of disasters, catastrophes (ensuring exclusive contact between system s operator and particular mobile station owner).

When mobile station is located within system operational area, using ordinary (typical) radio control methods its transmitter is secretly activated to detect location of this particular mobile station.

Victim recovery using GSM direction finding:

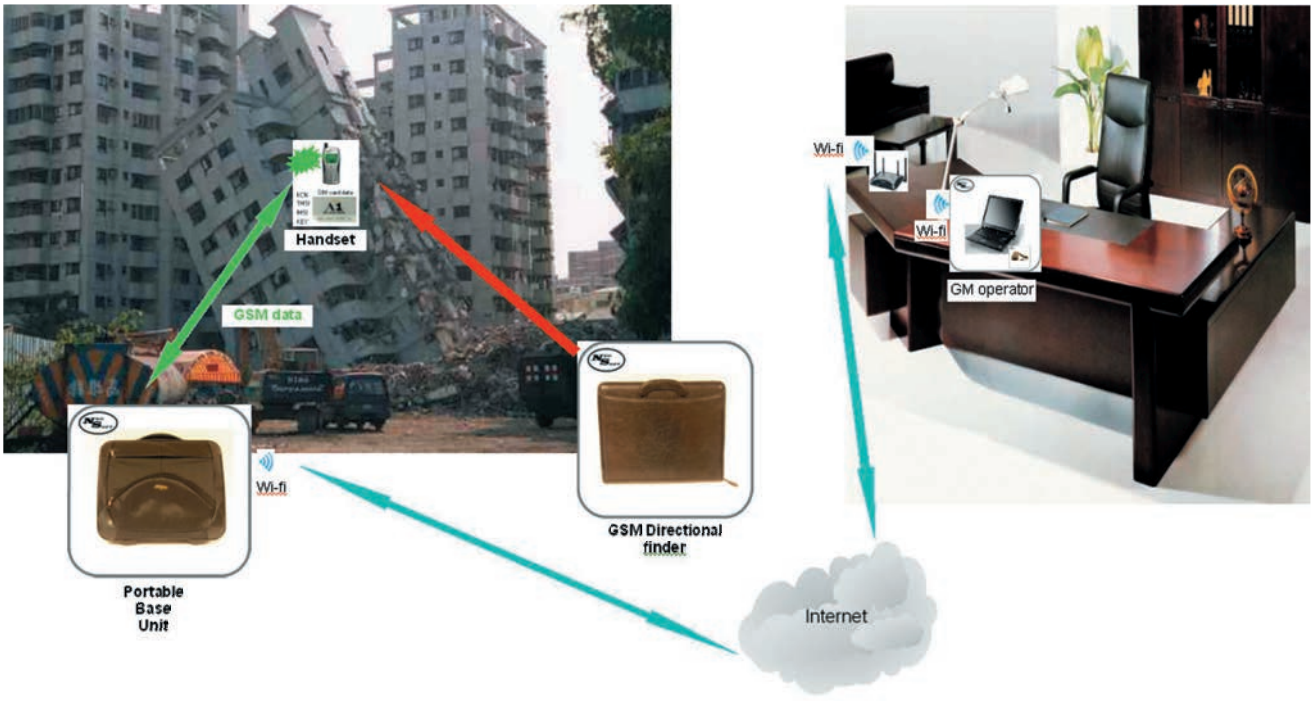
Specialized GSM system can help locate victims of earthquakes, landslides and building collapses.

By utilizing our special GSM Base Station it is possible to lock into the GSM handset of a missing victim and through our direction finding system the rescue team can locate the position of missing victims quickly and efficiently without disturbing the real network and without interfering with emergency service communications.

Technical Specifications

Equipment	Notebook PC with GM software, Portable GSM Base unit (Base unit, Battery, 3 x GSM Aerials, Portable PC (OQO)), GSM Active Stations unit, Directional finder

Functional diagram of the Victim recovery portable GSM based system by NeoSoft is represented below:



1.2 IMSI/IMEI catcher

1.2.1 IMSI/IMEI catcher 2G

System overview

Our specialized GSM system is intended for government agencies and law enforcement groups in order to collect basic GSM information (IMSI, IMEI) about handsets in the local area (airport terminals, prisons etc).

By utilizing our special GSM Base unit it is possible to create a special outlook system that can detect the presence of the group of handsets in the place of interest.

Operational overview

The Compact GSM Base unit forces GSM phones in its vicinity to register with it. Unlike others IMSI/IMEI catchers NS-17-1 does not need to transmit very powerful signals in order to force GSM phones to make the handover from the real GSM network into this micro network.

There are two basic selection modes of control for NS-17-1:

1. Random (all handsets);
2. IMSI or/and IMEI (only targets).

The system ensures selection of subscribers (targets) according to known IMSI or/and IMEI identifications. Also, it has the means of detection of such identifications according to the results of statistical processing of a list of registered subscribers.

The system operates invisibly, so that the mobile station subscriber is unable to detect it. The system does not interfere with the external mobile GSM networks.

Once the compact GSM Base Unit of NS-17-1 requests mobile phones to introduce themselves, i.e. to send their identities – IMSI and IMEI.

The Basic operational applications for NS-17-1 are:

IMSI/IMEI catching mode

This mode is intrinsic to the system and a part of all other modes.

The Software of the system initiates operation of the base station. A cell is created (further - internal network)

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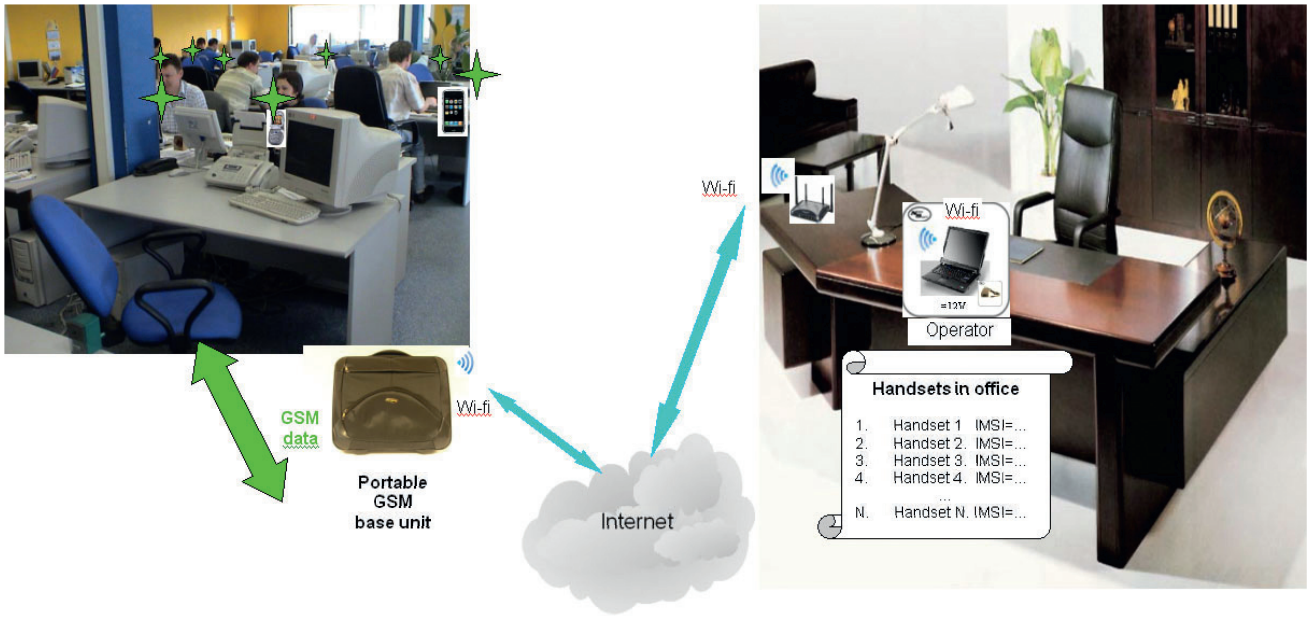
Functional diagram of the IMSI/IMEI catcher by NeoSoft is represented below:



where the MCC, MNC and arfcn correspond to the parameters of one of the real cellular network operators that operates in this area (further – external network (EN)), the LAC differs from the same used in the real network. Mobile phones located within its operational area (further – subscribers) will detect activation of a strong channel and start the registration procedure. They provide the system with their IMSI, IMEI, TMSI (received in the real GSM network), classmark, KCN. In the BTS control program window a list of registered subscribers appears. For the subscribers there is no difference between registration in this micro internal network or the real external network.

IMSI or/and IMEI mode

This operational mode is intended to select targets of interest (according to IMSI/IMEI identifications) from the total number of subscribers located within operational area of the system. This mode allows registration in the internal network only for subscribers listed in the target-list. The rest of subscribers will get refusal in registering in the internal network and go back to the EN. So, all resources of the system will be redistributed solely for escorting of sessions of the subscribers of interest. The system operates with these subscribers in the same way as it operates in IMSI/IMEI catching mode.

Targets correlation mode

This mode allows the system to search for identifications of subscribers of interest according to information (IMSI, IMEI and their combinations) accumulated during operation of the system.

Some of the additional applications for NS-17-1 are:

Jamming of communication;

Presence verification;

Data Analysis;

Direction Finding Support.

What is in the package?

Compact GSM base unit with three planar Directional Aeirials, battery and gateway Portable computer (OQO);

Notebook Computer with pre-installed software;

Carrying Case;

User s Manual.

Technical Specifications

Frequency Range	850, 900, 1800, 1900 MHz
Output power	0,1 - 10 Watts
Operation Range	50..1500 m
Dimensions portable	290 x 260 x 75 mm
Equipment	Notebook PC with GM software, Portable GSM Base unit (Base unit, Battery,3 x GSM Aerials, Portable PC (OQO))

1.2.1 IMSI/IMEI catcher 3G

Automatically scans and detects parameters of all 3G networks

Detects all 3G phones and collect all their identities (IMSI, IMEI and TMSI)

Displays phone model, country of origin and name of network provider

Measures distance to all 3G phones with accuracy of less than 30 m

Selectively force only target s phones to migrate to GSM mode. Rest of the phones stays in 3G-mode. Being pushed into GSM mode, 3G phones stay there until reboot. It makes possible interception of such phones by GSM passive interception systems. Active systems, after finishing interception, can send them back to 3G-mode.

Selectively blocks communication of 3G target s phones.

IMSI/IMEI catcher 3G NS-17-2 can be used either as a stand-alone device or integrated with NeoSoft GSM systems.

1.3 Working time outlook

The system is designed to track working time in corporations and other commercial firms.

Nowadays, a lot of production monitoring problems may be solved with the help of solutions based on GSM technology.

Basic features of "Working time Outlook" by NeoSoft are:

working time tracing for each employee is based on the fact of registration of a business handset in the corporate GSM network;

automatic registering arrival and departure events (early/later) for each employee;

the possibility of working time evaluating for each employee;

the possibility of shirkers detection;

the possibility of illegal visitors detection;

the possibility of employee presence tracing including remote access via Internet;

reports generation for managers and accountants. Each of them can be exported into popular formats.

The system is based on the following principles:

Setup and tuning of low-power GSM module on the local area (internal network);

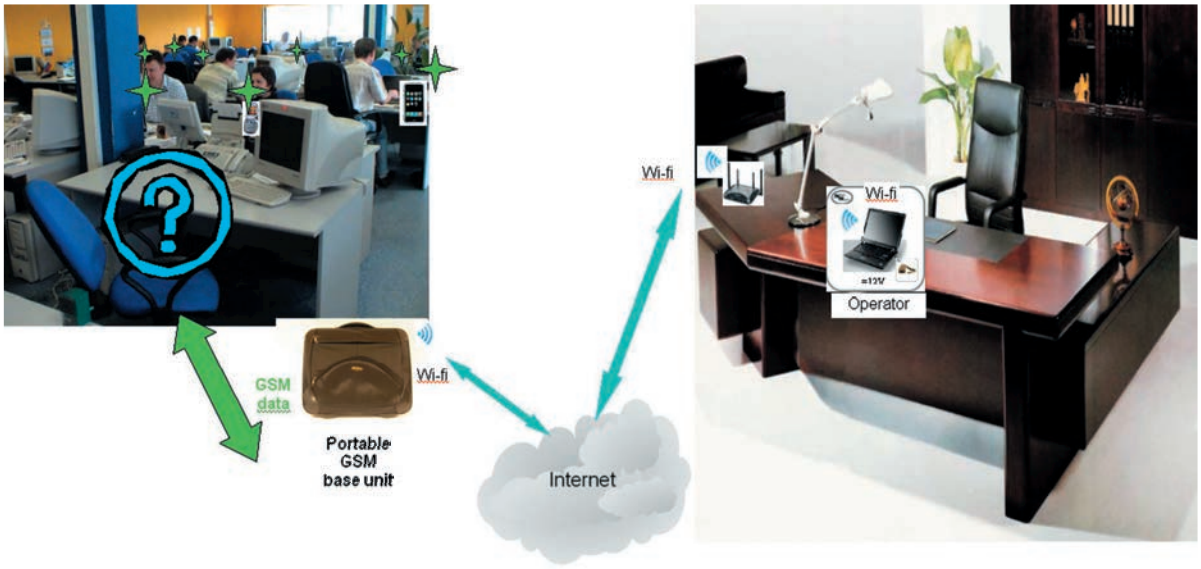
Periodic registration into this GSM network handsets from the neighbourhood;

Return registered handsets into external network - a provider of cellular communication.

The system does not collect information on the negotiations, communications and contacts for business handset user. It s work is based on respect for human rights and freedoms of employees according with international laws.

By utilizing our special GSM Base unit it is also possible to create a special outlook system that can detect presence of the group of handsets in the place of interest.

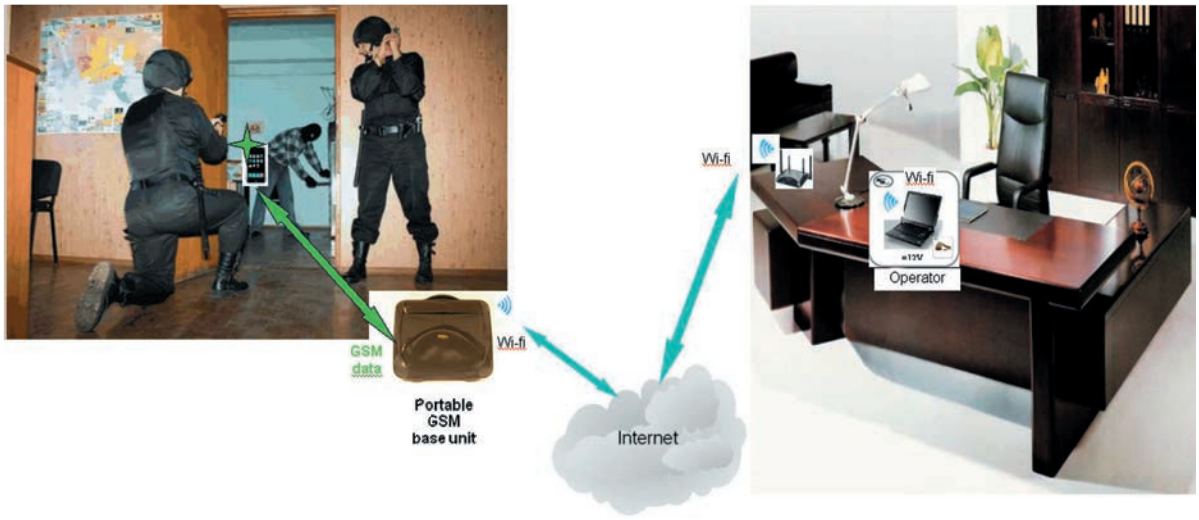
Functional diagram of the Working time outlook by NeoSoft is represented below:



Technical Specifications

Equipment	Notebook PC with GM software, Portable GSM Base unit (Base unit, Battery,3 x GSM Aerials, Portable PC (OQO))

1.3.1 Guardhouse GSM defender



Specialized GSM system can help locate illegal handsets in the interesting area;

By utilizing our special GSM Base unit it is possible to lock into the GSM handset of an unknown target and alarm the guard.

Technical Specifications

Equipment	Notebook PC with GM software, Portable GSM Base unit (Base unit, Battery,3 x GSM Aerials, Portable PC (OQO))

1.4 SMS data transfer

The system is designed to send advertisement SMS messages to handsets on local areas (banks, businesses, railway stations, shops, hotels, ships, etc.).

The system is based on the following principles:

- Setup and tuning of low-power GSM module on the local area (internal network);
- Registering into this GSM network handsets from the neighbourhood;
- Send advertising message to a registered handset;
- Return registered handsets into external network - a provider of cellular communication.

By utilizing our advertising system it is possible to achieve the following features:

- create special outlook system that can detect presence of new handsets in the place of interest and send advertisement messages for each of them;
- increase the attractiveness of your business to customers;
- keep update information for interested parties about ongoing promotions, sweepstakes, contests, discounts, dynamic, schedule changes, etc.;
- SMS-broadcasting in creative combination with news, finance, sports information, lottery results, and even horoscopes.
- the company of any size can transfer information about it s special offers to their existing and potential customers.

Now it is not necessary to be contacted individually with each potential customer. Thus, it becomes possible to save money on printed products.

Technical Specifications

Equipment	Notebook PC with GM software, Portable GSM Base unit (Base unit, Battery,3 x GSM Aerials, Portable PC (OQO))

2. Radio Controlled Improvised Explosive Devices Jammers





	NS-10-004	NS-10-004P	NS-10-001	NS-10-002	NS-10-003
Various solutions	Portable	Portable	Portable	Portable	Portable
Operational frequency bands, MHz	20 500	20 500	500 2 000	2 000 2 600	2 000 2 700 5 000 5 900
Integral output power EIRP, not less than, W	50	60	30	33	14




	NS-10-006	NS-10-008	NS-10-010	NS-10-018
Various solutions	Vehicle	Vehicle	Vehicle	Stationary
Operational frequency bands, MHz	20 2 000	20 2 600	20 2 700 5 600 ... 5 900	20 2 600
Integral output power EIRP, not less than, W	155	160	240	160

2.1 RCIED Jammer NS-10-004

Radio Controlled Improvised Explosive Device (RCIED) Jammer NS-10-004 is intended to protect field engineering staff during searching and discharge of RCIED.

RCIED Jammer ensures reliable jamming (triggering prevention) of RCIED operation in 20 500 MHz frequency band. If may be used together with all available RCIED searching and discharge equipment not disturbing its operation.

RCIED Jammer has built-in rechargeable battery that ensures its autonomous operation. To increase RCIED operational time, auxiliary battery is provided as a part of delivery set.

Technical Specifications

Operational frequency bands, MHz	20 500
Integral output power EIRP, not less than, W	60
Interference type	Wide band barrage
Continuous operational time when powered, not less than, min by built-in rechargeable battery by auxiliary rechargeable battery	 45 100
Operational temperature range, C	–20 45
Dimensions, mm	460 x 140 x 400
Mass, not more than, kg	16

2.2 Portable RCIED Jammer NS-10-004P

Is intended to protect VIP when there is a threat of acts of terrorism against them using radio controlled improvised explosive device (RCIED).

RCIED Jammer NS-10-004P creates special interference radio signals in frequency bands used by RCIED.

RCIED Jammer ensures reliable blocking (triggering prevention) of RCIED receiver that operates in 20 500 MHz frequency band.

RCIED Jammer delivered in a standard Pilot type Samsonite briefcase, has built-in rechargeable battery that ensures its autonomous operation. Delivery set includes external AC/DC charger.

RCIED Jammer NS-10-004P has no de-camouflaging elements (external aerials). It is simple in exploitation and does not require any adjustment procedure.

Technical Specifications

Operational frequency bands, MHz	20 500
Integral output power EIRP, not less than, W	50
Interference type	Wide band barrage
Continuous operational time when powered, not less than, hours	0,9
Operational temperature range, C	–20 45
Dimensions, mm	460 x 240 x 345
Mass, not more than, kg	12

2.3 Portable RCIED Jammer NS-10-001

Is intended to block coded radio signal received by radio controlled improvised explosive devices (RCIED) based upon GSM 900, AMPS/DAMPS, CDMA, GSM 1800, GSM 1900 cellular phones and DECT wireless phones.

RCIED Jammer ensures reliable blocking (triggering prevention) of RCIED receiver that works in 500 2000 MHz frequency band.

The device is delivered in a standard briefcase and has no de-camouflaging elements such as external aerials, etc.). RCIED Jammer has built-in rechargeable battery ensuring its autonomous operation. Delivery set also includes AC/DC charger.

It is advisable to use RCIED Jammer NS-10-001 together with RCIED Jammer NS-10-004P. When used together, they ensure blocking of RCIED operation in 20 2000 MHz frequency band.

Technical Specifications

Operational frequency bands, MHz	500 2000
Integral output power EIRP, not less than, W	30
Interference type	Wide band barrage
Continuous operational time when powered, not less than, hours	1
Operational temperature range, C	-20 45
Dimensions, mm	460 x 140 x 400
Mass, not more than, kg	10

2.4 Portable RCIED Jammer NS-10-002

Is intended to block coded radio signal received by radio controlled improvised explosive devices (RCIED) based upon UMTS 2100 and WCDMA cellular phones, Bluetooth equipment, WiFi equipment, 2.4 GHz cordless phones, etc.

RCIED Jammer ensures reliable blocking (triggering prevention) of RCIED receiver that works in 2000 2600 MHz frequency band.

The device is delivered in a standard briefcase and has no de-camouflaging elements such as external aerials, etc.). RCIED Jammer has built-in rechargeable battery ensuring its autonomous operation. Delivery set also includes AC/DC charger.

Technical Specifications

Operational frequency bands, MHz	2000 2600
Integral output power EIRP, not less than, W	33
Interference type	Wide band barrage
Continuous operational time when powered, not less than, hours	0,8
Operational temperature range, C	-20 45
Dimensions, mm	460 x 140 x 400
Mass, not more than, kg	11

2.5 Portable RCIED Jammer NS-10-003

Is intended to jam coded radio signal received by radio controlled improvised explosive devices (RCIED) based upon UMTS 2100 cellular phones, Bluetooth and WiFi equipment, 2.4 GHz and 5.8 GHz cordless phones and video senders.

RCIED Jammer ensures reliable jamming (triggering prevention) of RCIED receiver that works in 2000 2700 and 5600 ...5900 MHz frequency bands.

The device is delivered in a standard briefcase and has no de-camouflaging elements such as external aerials, etc.). RCIED Jammer has built-in rechargeable battery ensuring its autonomous operation. Delivery set also includes AC/DC charger.

Technical Specifications

Operational frequency bands, MHz	2000 2700 5000 5900
Integral output power EIRP, not less than, W	14
Interference type	Wide band barrage
Continuous operational time when powered, not less than, hours	60
Operational temperature range, C	-20 45
Dimensions, mm	460 x 140 x 400
Mass, not more than, kg	11

2.6 Vehicle Mounted RCIED Jammer NS-10-006

Is intended to protect VIP when there is a threat of acts of terrorism against them using radio controlled improvised explosive device (RCIED).

RCIED Jammer NS-10-006 ensures reliable blocking (triggering prevention) of RCIED receiver that operates in 20 2000 MHz frequency band.

Both control units of the RCIED Jammer are located in a vehicle boot. Set of whip aerials is fixed on a vehicle roof using demountable magnetic mounts.

RCIED Jammer is powered from a vehicle onboard power line.

Operator controls operation of RCIED Jammer from the passenger compartment using wire remote controller.

Technical Specifications

Operational frequency bands, MHz	20 2000
Integral output power EIRP, not less than, W	155
Interference type	Wide band barrage
Continuous operational time when powered, not less than, hours	12
Operational temperature range, C	-20 45
Dimensions, mm	530 x 320 x 165
Mass, not more than, kg	23

2.7 Vehicle Mounted RCIED Jammer NS-10-008

Is intended to protect VIP when there is a threat of acts of terrorism against them using radio controlled improvised explosive device (RCIED).

RCIED Jammer NS-10-008 ensures reliable blocking (triggering prevention) of RCIED receiver that operates in 20 2600 MHz frequency band.

Main control unit of the RCIED Jammer is located in a vehicle boot. Set of whip aerials is fixed on a vehicle roof using demountable magnetic mounts.

RCIED Jammer is powered from a vehicle onboard power line.

Operator controls operation of RCIED Jammer from the passenger compartment using wire remote controller.

Technical Specifications

Operational frequency bands, MHz	20 2600
Integral output power EIRP, not less than, W	160
Interference type	Wide band barrage
Continuous operational time when powered, not less than, hours	12
Operational temperature range, C	–20 45
Dimensions, mm	530 x 320 x 165
Mass, not more than, kg	23

2.8 Vehicle Mounted RCIED Jammer NS-10-010

Is intended to protect VIP when there is a threat of acts of terrorism against them using Radio Controlled Improvised Explosive Device (RCIED).

RCIED Jammer NS-10-010 ensures reliable jamming (triggering prevention) of RCIED receiver that operates in 20 2700 end 5600 5900 MHz frequency band.

Main control unit of the RCIED Jammer is located in a vehicle boot. Set of whip aerials is fixed on a vehicle roof using demountable magnetic mounts.

RCIED Jammer is powered by a vehicle onboard power line.

Operator controls operation of RCIED Jammer from the passenger compartment using wire remote controller.

RCIED Jammer NS-10-010 has no de-camouflaging elements (external aerials). It is simple in exploitation and does not require any adjustment procedure.

Technical Specifications

Operational frequency bands, MHz	20 2700 5600 5900
Integral output power EIRP, not less than, W	240
Interference type	Wide band barrage
Continuous operational time when powered, not less than, hours	12
Operational temperature range, C	–20 45
Dimensions, mm	530 x 320 x 165
Mass, not more than, kg	26

2.9 Stationary RCIED Jammer NS-10-18

Is intended to jam coded radio signal in 20 2600 MHz frequency band received by radio controlled improvised explosive device (RCIED) based upon home application electronic equipment (radio controlled toys, wireless phones, garage doors remote radio controllers, pagers, walkie-talkie radios, etc).

Stationary RCIED Jammer NS-10-018 was designed especially to protect building and objects against acts of terrorism that may take place at their territory using RCIED.

Each Stationary RCIED Jammer is designed taking into consideration configuration of particular building or object. It ensures reliable protection against RCIED usage at the whole protected territory.

RCIED Jammer NS-10-018 creates a protection zone around itself. People and objects located within this zone are not subject to act of terrorism using radio controlled improvised explosive device. RCIED Jammer emits special interference signal that prevents RCIED receiver to receive control signal emitted by the terrorists remote transmitter. Innovative design approaches and solutions prevent unauthorized RCIED triggering at Jammers influence.

Technical Specifications

Operational frequency bands, MHz	20 2600
Integral output power EIRP, not less than, W	160
Interference type	Wide band barrage
Continuous operational time when powered, not less than, hours	not limited
Operational temperature range, C	-20 45
Dimensions, mm	740 x 255 x 400 740 x 255 x 400
Mass, not more than, kg	45

3. Data Protection

3.1 Non-linear junction detectors



	NS-11-024	NS-11-001	NS-11-036
Probing signal frequency range, MHz	2409,6 2410,4	890 891	3580 3620
Weight, kg	⩽ 0.65	⩽ 1.00	⩽ 1.20

3.1.1 Non-linear junction detector NS-11-001 and NS-11-024


NS-11-001 NS-11-024

The non-linear junction detector (further NLJD) NS-11-001 (NS-11-024) is used for search and location of electronic devices both in active and switch-off state.

The detector operation is based on the property of semiconductor components to generate a response at the 2d and 3d harmonics when radiated by an RF probing signal. Semiconductor components of artificial origin will have a higher level second harmonic while semiconductor components of natural origin (e.g. oxide films) will have a higher level third harmonic respectively.

An NLJD analyzes the 2d and 3d harmonics response of the radiated objects, which enables a quick and reliable identification of electronic devices and natural oxide semiconductors.

The NLJD NS-11-001 (NS-11-024) automatically finds the best receiving frequency channel free of noise and distortion providing flawless operation even in the complicated electromagnetic environment. The frequency tuning algorithm implemented in NS-11-024 automatically selects the RF probing signal frequency such that the noise level in 2d harmonic receiving channel is held minimal, while digital processing of a demodulated signal gives maximum sensitivity.

There are two types of radiated signals:

continuous wave carrier (CW);
pulse modulated carrier with a duty cycle of 1% (pulse) for NS-11-001 or 4% (pulse) for NS-11-024.

This enables to combine wide detection range and reliable identification of the devices found.

The output power automatic control mode significantly simplifies operator's work. NS-11-001 (NS-11-024) simultaneously displays the 2d and 3d harmonics levels at its LED panel. Besides, the 2d and 3d harmonics levels can be estimated in turn aurally by the click repetition rate reproduced through a built-in loudspeaker or wireless earphones.

Detector of the returned RF signal envelope enables tapping radio microphones and using the acoustic feedback mode which facilitates search work.

Technical Specifications

	NS-11-001	NS-11-024
Radiated signal types	continuous wave carrier; pulse modulated carrier with a duty cycle 1%.	continuous wave carrier; pulse modulated carrier with a duty cycle 4%.
Carrier frequency step	0,2 MHz within a tuning range of (890 891) MHz. Automatic frequency selection. Possibility of radiation at the carrier frequency with a minimum noise level in the 2d harmonic receiver path	0,2 MHz within a tuning range of (2409,6 2410,4) MHz. Automatic frequency selection. Possibility of radiation at the carrier frequency with a minimum noise level in the 2d harmonic receiver path
Maximum radiated power	in the CW mode ⩽2 W	in the CW mode ⩽0,5 W
Peak radiated power	in the pulse mode ⩽10 W	in the pulse mode ⩽10 W
Manual or automatic control	of the radiated power level	of the radiated power level
Dynamic control range	of 30 dB down from the maximum output power value with 11 level gradations	of 30 dB down from the maximum output power value with 11 level gradations
Receivers sensitivity	better than -150 dBW given a 10 dB signal to noise ratio	better than -140 dBW given a 10 dB signal to noise ratio
Receivers tuning frequencies	equal to the transmitter double and triple frequencies	equal to the transmitter double and triple frequencies
Receiving path dynamic range	⩾ 70dB	⩾ 70dB
Time of continuous operation with a lithium-Ion battery at the maximum radiated power	⩾ 3 hours in the pulse mode; ⩾ 1,5 hours in the CW mode.	⩾ 3 hours in the pulse mode; ⩾ 1,5 hours in the CW mode.
Equipped device weight	⩽ 1kg	⩽ 0,65kg
Operating conditions	ambient temperature 5 40 C. pressure ⩾ 450mm of mercury	ambient temperature 5 40 C. pressure ⩾ 450mm of mercury

3.1.2 Non-linear junction detector NS-11-036

The non-linear junction detector NS-11-036 is an indispensable tool for quick and reliable location of unauthorized electronic devices during search operations in premises with a high density of electronic equipment. It is very effective when it comes to identify miniaturized electronic devices (10 x 20 mm) at a considerable distance, which is sometimes crucial when a suspicious object is to be analyzed from a safety range.

The use of microwave frequency range gives NS-11-036 some unique capabilities of detecting semiconductors hidden by different materials. It can detect semiconductors through slits and holes, ungrounded shielding, by means of reflection from a smooth surface etc. A SIM-card e.g. can be detected from a distance of 1m.

A very narrow directional pattern of the antenna and a built-in pinpointing laser provide space selective detec-

tion of various semiconductor elements with high precision. Sometimes it is a key factor when a suspicious object has to be analyzed from a safe distance.

This instrument uses the innovative technology and materials and has a very ergonomic design. It is compact, lightweight and is very easy to use.

The electromagnetic influence upon the operator is kept to the minimum level due to a very low duty cycle of probing pulses and decreased radiation to the operator side.

The instrument uses wireless headphones

Technical Specifications

Probing signal mode	Pulse
Probing signal frequency range	(3580-3620) MHz
2d harmonic receiver frequency range	(7160-7240) MHz
3d harmonic receiver frequency range	(10740-10860) MHz
Antenna gain at fundamental frequency	20 dB
Antenna gain at 2d harmonic	24 dB
Antenna gain at 3d harmonic	27 dB
Pulse power and duty cycle	20 W (0,6%)
EIRP (equivalent isotropic radiated power = radiated power plus antenna gain)	2000 W
2d and 3d harmonics sensitivity (antenna gain not considered)	-110 dBm
Dynamic range	> 40 dB
Antenna directional pattern width (at 1st/ 2d/ 3d harmonic)	16/ 8/ 4 degrees
Laser pinpointing of the antenna directional pattern center	+
Time of continuous operation at the maximum probing power	3,0 hours
Dimensions in operational / shipping condition	477 x 303 x 227/ 303 x 303 x 230 mm
Fully equipped weight	< 1,2 kg

3.2 Cellular jammers

	NS-12-001	NS-12-163
Operating in the frequency range	GSM 900, 1800, 1900 MHz, UMTS 2100 MHz	450, 900, 1800 MHz
Operation range	up to 10 m	up to 40 m
Dimensions	length 325 mm, dia 44 mm	210 x 170 x 60 mm
Weight	⩽ 330 g	1,4 kg

3.2.1 Pocket Cellular Phones Jammer NS-12-001

The product is used to block unauthorized work of cellular phones operating in the frequency ranges: GSM 900 MHz, 1800 MHz, 1900 MHz, UMTS 2100 MHz. Blocking can be implemented both simultaneously and selectively in the above ranges providing flexible control and wider usage.

A unique design enables to use the product almost under any application conditions: during confidential conversation in premises, cars, planes, etc.

The product is extremely easy-to-use.

Technical Specifications

The product operates in the following ranges:	
Range #1	GSM-900 standard (935 960) MHz;
Range #2	GSM-1800 standard (1805 1880) MHz;
Range #3	GSM-1900 standard (1930 1990) MHz;
Range #4	3G (UMTS) standard (2110 2170) MHz.
Maximum average output power:	
for ranges #1 and #2	⩾ 700 mW;
for range #3	⩾ 500 mW;
for range #4	⩾ 300 mW
Output power in each of the four ranges can be adjusted in 3 dB steps up to -6 dB from maximum value. The transmitter of each unused range can be fully switched off.	
Power supply	built-in Li-Ion battery (3,7 V; 7,8 A-h)
Operating time in different modes:	
maximum power in all 4 ranges	⩾ 4,5 h;
half power (minus 3 dB)	⩾ 8 h;
minimum power (minus 6 dB)	⩾ 13 h.
If unused ranges transmitters are switched off the operating time will increase.	
Battery charging time from 220 V charger	⩽ 6 h
Dimensions	length 325 mm, dia 44 mm
Weight	⩽ 330 g
Operating temperature range	0 C +50 C

3.2.2 Increased power cellular jammer NS-12-163

The device is designed to block operation of cellular phones

Technical Specifications

Frequnecy bands	450, 900, 1800 MHz
Operation range	up to 40 m (depends on the distance to the nearest base station)
Non-stop operation time	not less than 8 hours
Power adjustment	by 4 power steps in per each channel
Power-control threshold	not less than 10 dB
Power supply	220 V
Overall dimensions	210 x 170 x 60 mm
Weght	1,4 kg

3.3 Bug detection devices 1



	NS-13-081	NS-13-075	NS-13-031	NS-13-031P
Various solutions	Bug detection (high-speed search receiver - correlator)	Bug detection (digital RF detector)	Bug detection (multifunctional detection instrument)	Bug detection (multifunctional detection instrument)
Frequency range (RF)	20 - 3000 MHz	100-3000 MHz	30-2500 MHz	30-2500 MHz
Detection range of radio transmitters (P=5 mW at antenna)	> 5 m	up to 2 m	-	-
Dimensions	106 x 68 x 32 mm	77 x 47 x 5 mm	180 x 97 x 47 (350 x 310 x 160) mm	180 x 97 x 47 (350 x 310 x 160) mm
Weight	250 g	-	0,7 (4,5) kg	0,7 (4,5) kg

3.3.1 High-speed search receiver-correlator NS-13-081

High-speed near-field search receiver NS-13-081 is designed for the instant detection of radio transmitting overhearing devices - wireless microphones, telephone retransmitters, radio stethoscopes, etc. The device also provides detection and recognition of DAMPS, GSM 900, GSM 1800 cellular standards, as well as DECT and Bluetooth signals.

Owing to the availability of passive acoustic correlator, NS-13-081 can secretly and silently detect the sources of RF radiation without the aid of an operator.

The receiver has two operation modes: the search mode to detect and locate sources of radio signals and the alarm mode for permanent radio monitoring in a real time. The NS-13-081 device can detect frequencies in the range of 20 through 3000 MHz.

Upon detecting a signal, the receiver displays its frequency and level. The demodulated signal can be listened to through the built-in loudspeaker or headphones.

NS-13-081 can detect radio transmitters with a power of 5 mW at the antenna within a distance which is not less than 5 m. Duration of scan cycle depends on the environment interference and averages several seconds per the whole frequency range.

A method of correlation used in the receiver is designed to detect radio transmitting eavesdropping devices and based on comparing the demodulated signal with the reference acoustic signal, which presents on the premises.

The algorithm used in the NS-13-081 is based on the computation of cross-correlative function of the current power of acoustic signal, i.e. on the computation of its envelope. Due to this fact it is not necessary to take into account a difference of forms of the investigated and the reference signal, which is caused by the resonance properties of the premises. This greatly enhances the reliability of the analysis. For realization of this algorithm a voice signal is the most suitable, because it has a high peak factor (i.e. current power change). In addition this method lets detect radio transmitters with a secure analogous channel, for example with a spectrum inversion.

Distinctive features:

- built-in acoustic passive correlator;
- alarm and search operation modes;
- RS-232 interface for connection to PC.

Technical Specifications

Frequency range	20-3000 MHz
Signal modulation format	WFM, NFM, AM, pulse modulation (PM)
Standards of detectable digital signals	D-AMPS, DECT, GSM 900, GSM 1800, Bluetooth
Input sensitivity for a signal acquisition within the frequency bands:	
20 -200 MHz	-80 dBm (23 μV)
200 - 600 MHz	-70 dBm (71 μV)
600 - 1000 MHz	-63 dBm (160 μV)
1000 - 1400 MHz	-56 dBm (360 μV)
1400 - 1600 MHz	-49 dBm (795 μV)
1600 - 2500 MHz	-46 dBm (1,2 mV)
2500 - 3000 MHz	-43 dBm (1,6 mV)
Dynamic range of RF level meter	not less than 70 dB
Detection range of radio transmitters (P=5 mW at antenna)	not less than 5 m
Scan cycle duration	12 s
Average time of tuning to one signal	3 s
Average time of analysis of a signal correlation	4 s
Amount of signals stored in memory	up to 999
Amount of signals skipped while scanning	up to 999
Consumption current	not more than 120 mA
Power supply	from 9 V battery or from power adapter
Dimensions (without antenna)	106 x 68 x 32 mm
Mass	250 g

3.3.2 Digital RF detector NS-13-075

The NS-13-075 detector is notable for its midget dimensions. It is executed in a credit card form factor and is only 5 mm thick that makes it the thinnest RF detector in the world. Designed for detection and localization of different radio transmitters and operating mobile phones, the NS-13-075 has 4 operation modes:

1. Search mode with audible and light indication.
2. Pulse transmitters search mode (to search mobile phones and digital transmitters).
3. Watchdog mode.
4. Acoustic feedback mode.

Distinctive features:

usability;
smallest dimensions;
without external antenna.

Technical Specifications

Frequency range	100-3000 MHz
Sensitivity	not less than 100 mV/m
Dynamic range	not less than 40 dB
Detection range:	
for radio transmitter (P = 5 mW)	not less than 3 m
for cellular phone	not less than 10 m
Power supply	3 V (CR2032 battery)
Dimensions	77 x 47 x 5 mm

3.3.3 Multifunctional detection instrument NS-13-031

Multifunctional search instrument is intended to detect and locate special technical means for furtive data acquisition, to reveal natural and artificially created information leakage channels, as well as to monitor the information security level.

The instrument allows to process the received low frequency signals in either oscilloscopic mode, or spectrum analyser mode with a digital representation of data. Its non-volatile memory can store up to 25 screen images.

Technical Specifications

RF detector - frequency meter:	
frequency range	30-2500 MHz
sensitivity	not worse than 10 mV
Wire lines scanning analyzer:	
scanning frequency range	0,1-15 MHz
type of modulation	AM, FM
band pass	10 kHz

Infra-red radiation detector:		
spectral range		770-1000 nm
field angle		30 ±
Low frequency magnetic field detector:	frequency range	0,3-5 kHz
Vibro-acoustic converter:	sensitivity	not worse 1 V s^2/m
Acoustic converter:		
frequency range		300-6000 Hz
sensitivity		not worse than 5 mV/Pa

3.3.4 Multifunctional detection instrument NS-13-031P

NS-13-031P is a modification of the NS-13-031 model, with the following added capabilities:

scanning receiver control;
operation with an IBM PC-compatible computer (generation of graphic and audio files database).

3.4 Bug detection devices 2

3.4.1 Wire link analyzer NS-13-002

Wire link analyzer NS-13-002 is designed to detect unauthorized interfere into telephone line inside the office.

Besides, NS-13-002 can detect damages of the line such as short-circuit, breakage, leak resistance increase, etc.

NS-13-002 is equipped with a built-in battery and a charger. It operates day-and-night (mains connected).

Technical Specifications

Maximum distance to the interference place or line damage at shortening ratio of 1,5	450 m
Probing pulse amplitude	5 V
Shortening ratio	1 -9
Probing pulse time	100; 150; 200 ns
Input resistance	140 Ohm, (50 Ohm with a transformer)
Attenuation span	not less 86 dB
Detectability	3 pF at 200 m
Distance measurement instrument error	± 1 m

ROM memory (reflectogram storing)	not less 5000
Built-in display, color LCD-based	640 x 480
Power	built-in battery, AC mains 220V / 50Hz
Off-line operation time	not less 2 h
Charger	built-in from mains
Dimensions, not more	490 x 405 x 190 mm
Weight, not more	11 kg

3.4.2 Micro camera detector NS-13-001

NS-13-001 is a small and ultra light weight battery-operated device capable of speedy detection and identification of covert cameras. It can detect any hidden cameras (mini/micro video cameras, pin-holes, photo-cameras, digital cameras, cameras with auto focus etc) regardless of whether or not the cameras are powered. NS-13-001 is also suitable for the lost jewels searching. The principle of operation is based on the patented laser and optic technology.

Technical Specifications

Detection range	1 - 6 m
Laser output power	not more than 10 mW
Power supply	3 V (CR 123A rechargeable battery)
Time of continuous operation	30 h
Overall dimensions	50 x 50 x 100 mm
Weight	not more than 200 g

3.5 Counter espionage devices

3.5.1 Acoustic noise generator for cellular phones NS-16-001

NS-16-001 is designed for prevention of unauthorized audio information pickup via cell phone. NS-16-001 looks like as a pencil holder. A cell phone should be places inside this holder.

NS-16-001 detects when phone transmitter turns on and automatically actuates a built-in noise generator.

The device has a sound battery discharge indication.

Technical Specifications

Noise level at the place of mobile phone microphone	not less than 100 dB
Effective spectrum of noise signal	300-4000 Hz
Power supply	2 AAA batteries
Time of non-stop operation from the same batteries	at least 6 months

3.5.2 Active protection for electric circuit and ground NS-16-044

The device is a technical mean of active protection of information.

The NS-16-044 prevents from information leakage through the power-supply and ground lines providing a masking noise there. It also suppresses wiretaps which are using these lines as a data-transmitting channel.

Technical Specifications

Noise frequency range	0,01 - 300 MHz
Lines protected	power supply, ground
Spectral-noise density (at 50 Ohm load relatively 1 μV/ v kHz) in the frequency bands, not less than:	
0,01 - 1 MHz	90 dB
1 - 10 MHz	70 dB
10 - 100 MHz	50 dB
100 - 300 MHz	35 dB
Noise level adjustment range in the frequency bands, not less than:	
0.01 - 0.5 MHz	20 dB
5 - 300 MHz	12 dB
Quantity of independent noise signal channels (for phase-to-ground and zero-to-ground circuits)	2
Noise quality factor	not less than 0,9
Leakage current through ground line	not more than 1 mA
Noise actuation control	manual, remote, RS-485
Operation conditions:	
operating temperature range	from 0 up to +50 C
relative humidity at +25 C	up to 85%
atmospheric pressure	750 ± 40 mm Hg
Power supply:	
AC mains	220 V ± 10% 50 Hz
power consumption	not more than 12 W
Mass-volume:	
dimensions	172 x 172 x 42 mm
weight	not more than 1,5 kg

3.5.3 Digital recorder NS-16-003

Professional digital high-qualified recording in under complicated acoustic conditions in MP3 format keeping the information at Compact Flash 512 Mb. Computer conversion to a standard MP3 file of 12 hours record takes 10 minutes. Express control of the record made is available.

Maximum recording time is up to 43 hours. Stereo mode while using external microphone is also possible

MAIN COMPETITIVE ADVANTAGES

Reliable metal shielded case prevents blocking of the device by voice recorder jammers.

Record start time and date protocol of each segment.

Switch on record mode from 0 to 7 days.

Additional accessories: 2 external microphones and wire control panel to switch record ON.

Technical Specifications

Bandwidth	400-10000 Hz
Dynamic range	not less 70 dB
Harmonic ratio at f =1kHz	less 1%
Operation time with a built-in Li-Ion battery	not less 12 h
Maximum voltage at line output	not less 0,6 V
Supply voltage from external source	4-6 V
Number of recording/reproducing cycles	not less 300000
Operation temperature range	(-10 +40) C
Dimensions	105 x 58 x 13 mm
Weight	not more 150 g

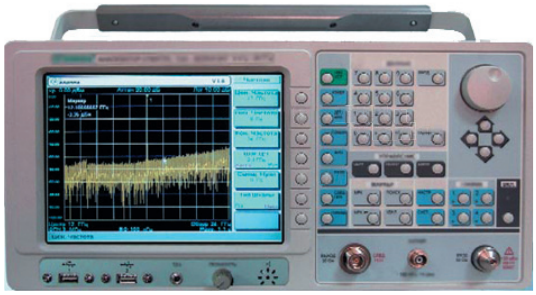
4. Test & Measurement





	NS-14-008	NS-14-140	NS-14-240	NS-14-280	NS-14-400
Various solutions	Handheld Frequency And Power Meter	Spectrum Analyzer	Spectrum Analyzer	Spectrum Analyzer	Spectrum Analyzer
Frequency Ranges	100 kHz 8 GHz	9 kHz 14 GHz	9 kHz 24 GHz	9 kHz 28 GHz	9 kHz 40 GHz

4.1 Spectrum Analyzer NS-14-140/240/280/400



Spectrum Analyzer NS-14- 140/240/280/400 is a bench-top spectrum analyzer family offering value far beyond its price tag. Building on their very high characteristics (e.g. DANL of -153 dBm/Hz, RBW from 1 Hz to 10 Mhz, TOI of +20 dBm and industry-leading phase noise of < -125 dBc @20 kHz offset from 10 GHz) these analyzers may become an instrument of choice for budget conscious engineers who cannot afford sacrificing the performance. This family is designed for both R&D and manufacturing environment and targets at versatile applications, from communication market to aerospace and defense areas.

Technical Specifications

Frequency Ranges:	
NS-14-140	9 kHz 14 GHz
NS-14-240	9 kHz 24 GHz,
NS-14-280	9 kHz 28 GHz,
NS-14-400	9 kHz 40 GHz
Fundamental mixing in the whole frequency range:	
9 kHz 3,3 GHz	band 0 (LO multiple or N - 1);
3,3 GHz 10 GHz	band 1 (LO multiple or N - 1);
10 GHz 24 GHz / 28 GHz	band 2 (LO multiple or N - 2);
24 GHz 40 GHz	band 3 (LO multiple or N - 4).
A 4 stage YIG-tuned filter is used from 2,7 GHz to 1 4/ 24 / 28 / 40 GHz depending on the model.	
Frequency reference:	
Aging	±1 x 10E-6 / year
Temperature stability	±3 x 10E-7 (15-30 C)
Initial calibration accuracy	±1 x 10E-7
Residual FM	<0,5 Hz p-p in 20 msec
Frequency readout accuracy (at marker point)	±1 x 10E-6 x $F_{MEASURED}$ +SPAN/450+2 Hz xN +1LSD
Frequency Span	
Span range	0 Hz, from 50 Hz to full span
Span accuracy	< ±1%
Resoultion Bandwidths	
-3dB bandwidths range	from 1Hz to 10 MHz in 1, 3, 10 sequence + 5MHz
-6dB bandwidths (EMI-filters, CISPR-16)	200 Hz, 9 kHz, 120 kHz, 1 MHz
RBW Accuracy	<±15%
RBW Selectivity (-60dB/-3dB)	<5:1
RBW switching error:	< ±0,10 dB for RBWs ⩾ 10Hz
	< ±0,25 dB for RBWs 1 Hz, 3 Hz
Level measurement range	from +30 dBm to -130 dBm (with a minimum SNR of >10 dB)
Displayed average noise level (1 Hz RBW, 0 dB attenuator)	
RF Input Frequency	**Displayed Average Noise Level**
10 MHz 3,3 GHz	-153 dBm
3,3 GHz 10 GHz	-150 dBm
10 GHz 24 GHz	-145 dBm
24 GHz 40 GHz	-140 dBm

Guaranteed SSB phase noise performance:

Frequency	Offset				
	100 Hz	**1 kHz**	**10 kHz**	**100 kHz**	**1 MHz**
1 GHz	-98 dBc/Hz	-115 dBc/Hz	-123 dBc/Hz	-128 dBc/Hz	-140 dBc/Hz
4 GHz	-97 dBc/Hz	-118 dBc/Hz	-126 dBc/Hz	-132 dBc/Hz	-150 dBc/Hz
10 GHz	-92 dBc/Hz	-110 dBc/Hz	-120 dBc/Hz	-125 dBc/Hz	-140 dBc/Hz
40 GHz	-77 dBc/Hz	-100 dBc/Hz	-110 dBc/Hz	-115 dBc/Hz	-130 dBc/Hz

Residual signals:	-100 dBm.
Spurious:	-70 dBc
Third Order Intercept Point (TOI):	9 kHz 3,3 GHz +20 dBm 3,3 GHz 10 GHz +10 dBm 10 GHz 40 GHz +7 dBm
Second harmonic Intercept Point (SHI):	9 kHz 3,3 GHz +40 dBm 3,3 GHz 24 GHz +80 dBm 24 GHz 40 GHz +70 dBm
Flatness (input levels +10dBm...–60dBm):	9 kHz 3,3 GHz ±0,5 dB 3,3 GHz 10 GHz ±1,5 dB 10 GHz 40 GHz ±3,5 dB
Input Step Attenuator:	70 dB in 10 dB steps.
Attenuator switching error	9 kHz 3,3 GHz ±0,7 dB 3,3 GHz 10G Hz ±1,2 dB 10 GHz 40 GHz ±2,2 dB
Detectors:	RMS, peak, sample, minimum, normal, quasi-peak.
Demodulators:	AM, narrowband FM, wideband FM.
Amplitude units:	dBm, dBmV, dBµV, W, V.
Automatic measurements:	channel power, occupied bandwidth, ACP, harmonics, AM depth, FM deviation, harmonic distortion, phase noise, noise figure.
Connectors:	RF input - planar crown connector system 2.92 mm (male) / 3.5 mm (female) / N-type (female) depending on the model; calibration output 100 MHz BNC (female); tracking generator output (option) N-type (female); 21.4 MHz out SMA (female); 1st LO out SMA (female)
Interface connectors:	RS-232, GP-IB, LAN, 4 USB ports.
Windows 98 Operation System.	
3 Years warranty	

4.2 Handheld Frequency And Power Meter NS-14-008

NS-14-008 can be used to measure frequency and power of radio signals in a wide range of development, diagnostic, adjustment and search applications related to radio devices.

NS-14-008 can detect any sources of radio emission within the frequency range from 100 kHz up to 8 GHz featuring sensitivity of -53 dBm with a typical S/N ration of 5 dB. That means that a transmitting device with an output power of +7 dBm (5 mW) coupled to a matched 1/4 wavelength antenna can be easily detected from the distance of up to 8m.

NS-14-008 provides the user with a wealth of functions:

It can determine frequency of the input signal within a frequency range from 100 kHz to 8 GHz.

It can measure power of the input signal within a level range from -50 dBm to +30 dBm.

It can identify in the input signal characteristic features of the data transfer protocol for different communication standards (GSM 900/1800/1900, DECT), e.g. for GSM it can determine SMS and Talk operating modes, as well as the frequency channel.

It can automatically tune radio receivers and spectrum analyzers to the measured signal frequency via a built-in interface (option, ordered separately).

It can use its built-in memory, clock and calendar functions to protocol and store measurement results.

It can be integrated into automated systems of radio monitoring via a serial interface.

It can utilize acoustic feedback mode during search work.

It supports surveillance mode when it responds to signals with a power level exceeding a specified threshold.

NS-14-008 has the following features:

30dB input attenuator adjusted in 10dB steps.

Count time selection.

Input frequency range selection.

User level correction setting.

Battery charge/discharge control.

Real-time clock and calendar.

Built-in light and acoustic indication.

RS-232 interface.

Technical Specifications

Frequency range	100 kHz 8 GHz
Maximum safe input level	+30 dBm (1 W)
Input impedance	50 Ohm
Dynamic range of power level measurement	90 dB, (-60 dBm + 30 dBm)
Accuracy of power level measurement	±0.5 dB
Sensitivity for frequency measurement	⩽1,26 mV (-45 dBm) for the frequency range (300-6000) MHz, ⩽12,68 mV (-25 dBm) for the ranges (0,1-0,3) MHz and (6000-8000) MHz
Typical sensitivity of power measurement	⩽ -53 dBm (S/N >5 dB)
13MHz reference oscillator	± 2,5 ppm (-30 +80 C), ±1,5 ppm (+25 C)
VSWR	⩽1,5
Operating temperature range	from 0 C up to +50 C
Power supply	a built-in Li-Ion battery 3.6 W/1.95 A/h
Average current consumption	⩽ 250 mA
Input connector	N-type (female)
Dimensions	115 mm x 70 mm x 27 mm

5. Auxiliary equipment

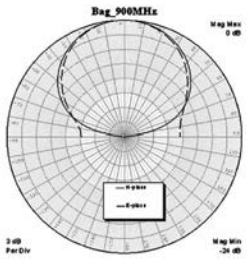
5.1 Directional finders

GSM finder equipped with a directional antenna is intended for search and localization mobile stations operating in GSM range 900 ($1 \leqslant n \leqslant 124$), 1800 ($512 \leqslant n \leqslant 885$), and 1900 ($512 \leqslant n \leqslant 810$) where n - a number of a channel chosen by the operator. Have compact dimentions and looks like document-case or keeps on the operator's body... While operating the user hears detected sound signals of TDMA sequence natural for GSM telephony. Depending on direction and distance from the object volume level in head phones will change.

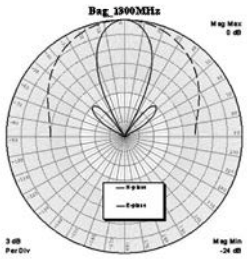
- Indoor direction finder
- Small and light weight
- Support GSM900, DCS1800 and PCS1900
- Rechargeable batteries
- Sound indication

1. Document-case variant

While operating the finder it is necessary to connect it to the antenna connector of the corresponding range. Rotating the antenna right or left will help to achieve the maximum in the readings of the signal level on the receiver LED or maximum volume level in the head-phones. In this case the direction perpendicular to the folio-case corresponds to the direction towards the target.



Directional finder radiation pattern on 900 MHZ



Directional finder radiation pattern on 1800 MHZ

2.Body keeping variant

While operating GSM finder the operator fixes the antenna on breast or on waist in front. Turning to the right or to the left achieve maximum signal level readings of the

receiver LED or maximum volume level in head phones. In this case direction just before the operator corresponds to the direction of the object under searching. While the operator is achieving to the object under searching, may be, it is necessary to change sensitivity of the device switching on 3-stepped attenuator 10, 20, 30 dB. Attenuation value is determined by experiment.

Directional finder radiation pattern

5.2 Amplifier 1800 MHz 50W

Device is intended to amplify output radio signal for DCS-1800 range devices

IN plug of the amplifier must be connected with the TX plug of the GSM - DCS Base unit via high quality coaxial cable; IN 4W is intended to amplify signal from Portable BTS units by NeoSoft (4 W, +36 dBm);
IN 10W is intended to amplify signal from Stationary BTS units by NeoSoft (10 W, +40 dBm).

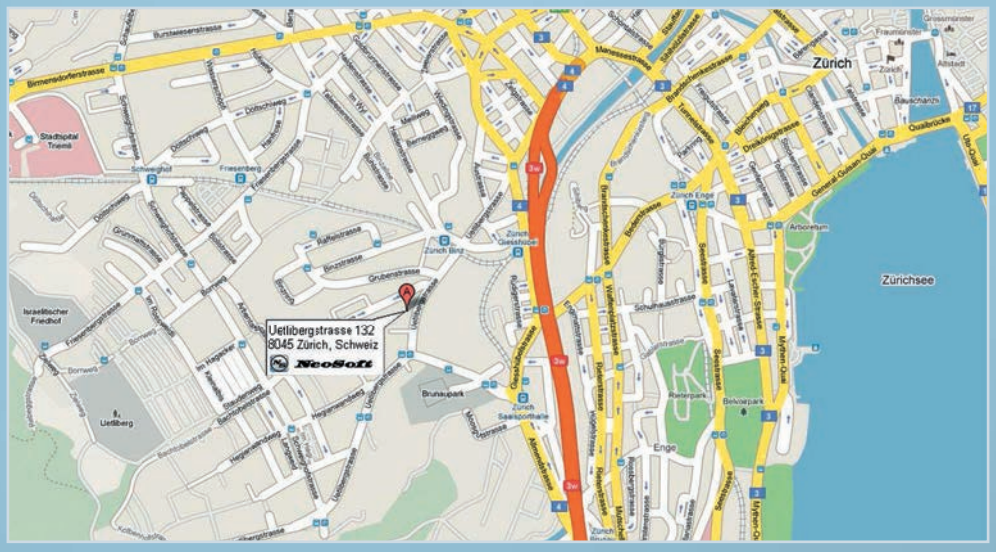
OUT plug of the amplifier must be connected with external GSM/DCS antenna or combiner.

Led indicators

Green led (POWER) indicates that amplifier is switched ON
Red led (RF) indicates that output power is higher than 2 W

Technical Specifications

Range	1805 1880 MHz
Pmax , continues mode	50 W (+47 dBm)
Power source	90-260 V AC f=47-63 Hz or 120-370 V DC
Level of higher harmonics of the output signal at maximum output power	< -15 dBm
Dimentions, mm (W x H x D)	320 x 230 x 170
Connectiors	in: 2 x SMA-sockets 4 W and 10 W separately out: N-Type-male



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