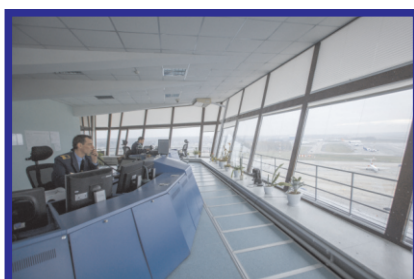


CATALOG



50 YEARS IN AUTOMATION OF MANAGEMENT



Henadzi Kazakou

Chairman of "Geoinformation Control Systems Holding" directors

Director of OJSC "AGAT Control Systems"- Managing Company of Geoinformation Control Systems Holding"

Major-General
General Designer on the Automatic Control Systems & Communications of the Republic of Belarus

Our goal is to reach a new, higher level in ensuring the competitiveness of ongoing projects, develop new areas, and create modern high-tech products in demand in the Republic of Belarus and around the world.



OJSC "AGAT- Control Systems" traces its history back to the scientific research institute of automation equipment (NIISA) founded in 1969 on the basis of the Minsk Electromechanical Plant.

In 2011 the unitary enterprise "NIISA" was transformed into OJSC "AGAT - Control Systems" which then became the managing company of the "Geoinformation Control Systems holding".

OJSC "AGAT - Control Systems" is the head managing company of the holding and one of the leading research institutions in the Republic of Belarus engaged in the complex systematic research on the management of global objects and the practical implementation of these management systems. During its growth the Company passed through all the stages of development and use of electronic equipment: from relays and lamps to modern microelectronics, created four generations of tools and control systems.

The main activities of OJSC "AGAT - Control Systems" are as follows:

- defense products (military, geoinformation products including robotic control systems, command and control of the Armed Forces at all levels);
- dual-use products (systems and power supply facilities, industrial computers, navigation and

video surveillance systems);

- industrial engineering products (Automated Control Systems for management of transport vehicles, power industry and industrial enterprise procedures);

- automated information systems for the state run public authorities;

- products and services in the area of information and cyber security.

Today about 20 countries are equipped with modern samples of OJSC "AGAT-Control systems" products.

The company has created dozens of modern design centers, it implemented the automated system of end-to-end design-engineering project management.

The implemented CAD/CAM/CAE/PDM systems allow to use solid databases and electronic archives, perform solid-state design and three-dimensional modeling of structures, perform power, thermal and static analyzes and structural optimization, conduct virtual tests of electronic models of products, design technological rigging and developing of technological processes, generating design and technological documentation, managing projects and electronic technical workflow.

The company has its own production and testing base with modern technological equipment which ensures the manufacture of pilot samples of products and serial production.

OJSC "AGAT - Control Systems" is authorized to carry out the foreign trade activity in referring to specific goods (works, services) as well as other licenses and certificates, valid patents and certificates of the Republic of Belarus, Russian Federation and Eurasian Patent Organization.

AF & AD ACS

PANORAMA



It is used to equip the command posts for management of AF and AD tactical and operation-tactical command level units.

NEMAN-E



It is used to equip the command posts of AF units, air bases with the purpose of automated control the activities of units and crews of fighters, AF attack aircrafts when planning, combat standby duty and combat operations.

POLYANA-E



It is used to equip the command posts of AD missile brigades (guided missile regiments) with a purpose of arms, forces and reconnaissance automatic management including the mixed structure of forces.

SPRUT-E



It is used to equip guidance stations which purpose is management of airborne systems when guiding at air and ground targets during route flights and combat zone air patrolling.

RANZHIR-RB

It implements the management of short-range air defense systems squadron both in a centralized mode - under the control of a higher command post (HCP) and while independent warfare as part of a squadron activity.



RIF-E

It is used to equip command posts of radio engineering units (radar platoons, companies, battalions) with the purpose of automatic collection, processing, combining and displaying the radar information obtained from radars and mobile altimeters to determine targets nationality and issuing of the radar information to a higher command post.



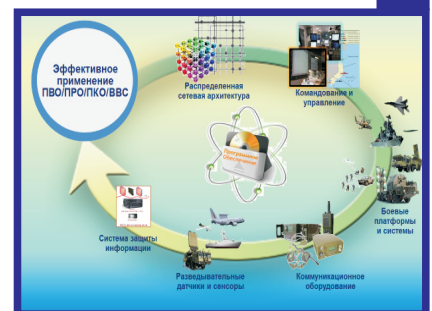
VERSHINA

It is used for the automation of management of the combat work referring to the radio engineering brigade activity which ensures collection and processing of the information obtained from radio engineering units and its delivery to control points of the Air Force and Air Defense forces and monitor the airspace usage.



ACS OF AD/ABMD/SPACE DEFENSE/AF (C4I TYPE)

Research, designing and development of network-centric automated control systems of the latest generation. Decision support systems, simulation of modern assault systems including hypersonic and information processing obtained from all classes of sensors.



AF & AD ACS

P-18BMA RADAR



The radio engineering units (radar platoons, companies, battalions) are equipped with upgraded modern digital radar stations for the long-range target detection, automatic acquisition, processing and delivery of the radar information to a command post (CP) with the possibility of using both offline and automated control systems.

MC250 DEVICE



A unified device for interfacing and processing of the information obtained from radar information sources (radar, mobile altimeter) and anti-aircraft missile systems with the analog interface for linking with ACS.

"SOSNA-2" MOBILE RADIO RELAY STATION

Arrangement of radio-relay and cable (copper cable and fiber-optic) communication lines, wireless broadband access zones and DMR radio communication networks as a part of field support communication centers, communication centers of the Armed Forces command posts, as well as to ensure their binding, including to public telecommunication networks.



"CITRUS" MOBILE RADIO RELAY STATION

Formation of radio-relay and cable wire and fiber-optic digital communication links as a part of the communication major nodes of the field support communication network of the Armed Forces.



"HORIZONT" TROPOSPHERE RADIO COMMUNICATION STATION

Deployment of trunk digital tropospheric communication lines and ensuring of the operation of the digital communication lines in the field reference communication network of the Armed Forces, arrangement of direct communication lines between the communication hubs of mobile control centers in the operational, operational-strategic and strategic control units.



"BOGATYR - 2" COMBINED RADIO STATION

It provides open and secure voice communication, data transmission via HF and VHF radio channels, network of a mobile operator, satellite communications station on the run and in the parking lot, at the operational and operational-strategic levels of management.



"KAIMAN-KAS" COMPLEX COMMUNICATION EQUIPMENT ROOM



It provides the communication during different types of combat activities, fulfillment of peacetime tasks and elimination of emergency situations at a tactical control level. It can be used by officials at the operational and operational-tactical levels of management at the advanced command posts.

MOBILE MULTIFUNCTIONAL COMMUNICATION SYSTEM



It equips field mobile communication centers of the ground forces, air force and air defense forces, other state bodies with the purpose organize and provide subscribers with high-speed digital links and communication lines.

S-BAND DIGITAL RADIO RELAY STATION - R-425



It is intended for the construction of trunk radio-relay communication lines, redundancy of cable (wire and fiber-optic) communication lines, operation at stationary and mobile objects (on a wheeled vehicle) without operation on the run.

UHF DIGITAL RADIO RELAY STATION R-429 OF



It is designed to create wireless lines and communication networks of direct visibility for the digital data transmission in the duplex mode in the entire frequency range - from 238 to 480 MHz with data transmission rates on the main stream of 256 Kbit per s, 512 Kbit per s, 1024 Kbit per s, 2048 Kbit per s.

MOBILE HUB SATELLITE COMMUNICATION STATION

It provides the automated satellite communications via civilian the communications and broadcasting satellites located in the geostationary orbit including long-range spacecrafts of the satellite broadband network in Ku band and C frequency band by providing of a digital high-speed link as well as military spacecrafts with arrangement of jam-free satellite communications for various control links in C band.



MOBILE TERMINAL SATELLITE COMMUNICATION STATION

It provides the automated satellite communications via the civilian communications and broadcasting satellites located in the geostationary orbit including long-range satellite broadband satellite networks in Ku band and C frequency band by providing a digital high-speed link as well as a military spacecraft with the arrangement of jam-free satellite communications for various control links in C range, arrangement of fiber-optic and wired communication lines, deployment of data transmission networks.



TRANSPORTABLE TERMINAL SATELLITE COMMUNICATION STATION

It provides the automated satellite communications via civilian communications and broadcasting satellites located in the geostationary orbit including long-range satellite broadband satellite networks in Ku band and C frequency band by providing a digital high-speed link as well as military spacecraft with jam-free satellite communications for various control links in C range.



PORTABLE SATELLITE COMMUNICATION RADIO SET

It provides the automated satellite communications via civil and space communication, the broadcasting satellites are located in geostationary orbit including advanced spacecraft of the broadband satellite communications network in Ku band and C frequency band by providing a digital high-speed link as well as military spacecraft with jam-proof satellite communications for various control links in the C range.



ARMY AUTOMATED CONTROL SYSTEMS

ARMY SUBSYSTEM



Automation of the processes and tasks for control of troops (forces) daily activities, setting of combat missions to subordinate units, military units and subunits.

AUTOMATIC CONTROL SYSTEM OF PC30 V-200 MULTIPLE ARTILLERY ROCKET RECONNAISSANCE - STRIKE SYSTEM



Complexing and integration into a reconnaissance and strike system of the multiple artillery rocket system large-caliber and air (special) reconnaissance units.

AUTOMATED COMMAND POST OF RADIOELECTRONIC WARFARE UNIT



Automation of the main processes for control of forces and armament of a unit when performing combat (training) tasks in the parking lot. Coverage of ground objects from aerial reconnaissance and protection against foe targeted fire damage.

MULTIFUNCTIONAL RECONNAISSANCE SYSTEM - BRDM-4B



BRDM-4B armored reconnaissance scout vehicle is designed to conduct military reconnaissance in various types of combat, at any time of the day and in any weather, including conditions of limited visibility (rain, snow, fog, smoke screen, light interference, etc.), at a considerable distance (up to 300 km) from its troops as part of various intelligence agencies.

PORTABLE ARTILLERY FIRE CONTROL SYSTEM

Automated control of the preparation and combat activities of the artillery (rocket artillery and mortar) squadron.



FIRE CONTROL SYSTEM OF CANNON AND MISSILE ARTILLERY

For automated and non-automated control of combat operations of rocket artillery units equipped with 9K57 Uragan multiple artillery rocket system, either during planning or during combat operations (planning of the move, deployment, maneuver, topographic and meteorological support, reconnaissance, training and fire control).



ARTILLERY TACTICAL UNIT OF FIRE CONTROL AUTOMATED SYSTEMS

It is designed for automated and non-automated control of combat operations exercised by an artillery squadron (battery). It provides the voice communication and data transfer to higher, interacting and subordinate control points on the spot and on the move.



ARTILLERY BRIGADE COMBAT CONTROL VEHICLE

It is intended for the special tasks automated solution, automated data exchange via data communication links, provision of radio and landline telephone communications for a brigade commander with higher and lower management bodies, subordinate, attached and interacting units (products).



AIR AND GROUND ROBOTIZED SYSTEMS

"GRIF-100E" UAS



It is designed for running of the area air optoelectronic and radiation reconnaissance, electronic countermeasures of enemy electronic equipment, detection of emergency situations and assessment of their consequences.

"BERKUT -1E" and " BERKUT-2E" UAS



It is designed to equip the tactical units of the Ministry of Defense with the purpose to solve the tasks for optoelectronic reconnaissance in various weather conditions, at any time of the day and targeting for fire units.

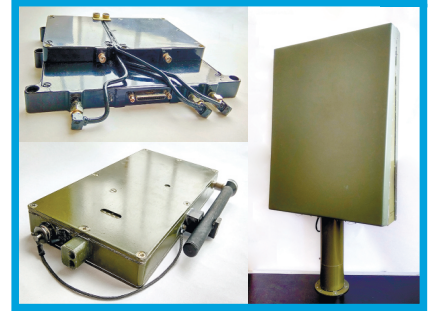
"BERKUT-3" UAS



It is intended for conducting of optoelectronic reconnaissance, 24 hours monitoring of the area in real time mode on vast territories and hard-to-reach places, monitoring of emergency situations and automated tracking of objects.

RS-50 RADIO SYSTEM

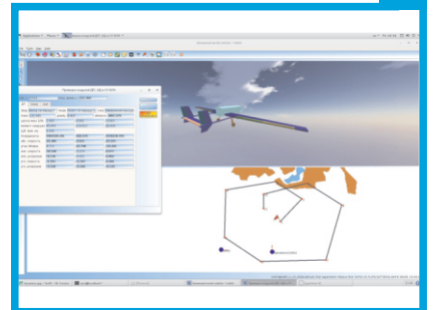
It is designed for usage in unmanned aerial systems (LHC). It provides the data exchange between an unmanned aerial vehicle (UAV) and a ground control station (GCS) in a half-duplex mode in the L frequency band, transmitting of data from a UAV to a GCS and a ground terminal (GT) in a simplex mode in S frequency band.



TECHNOLOGY TO CREATE FLIGHT MANAGEMENT AUTOMATED SYSTEM SOFTWARE (UAV)

UAV flight management system provides as follows:

- UAV management during the flight in automatic mode;
- UAV management during the automated and manual flight modes;
- UAV payload management.



MOBILE ROBOTIC SYSTEM MRK-A1

It is used for remote engineering by using a manipulator and attachment equipment (payload modules), solving tasks of audiovisual reconnaissance, monitoring of the environment for the presence of harmful agents, radioactivity, detecting of explosive vapors, handling of various purpose cargo.



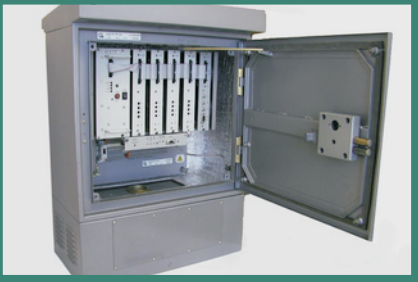
AUTOMATION IN TRANSPORT DOMAIN

ROAD TRAFFIC CONTROL AUTOMATION SYSTEM ("AGAT")



It is designed to control the parameters of traffic flows on the city's road network; adaptive traffic control according to the parameters of traffic flows; informing of traffic participants about the recommended speed on highways, duration of the allowing and prohibiting traffic light signals, occurrence of traffic jams (pre-jam situations) and bypass routes.

ROAD CONTROLLER OF BDKL SET OF COORDINATED TRAFFIC LIGHTS



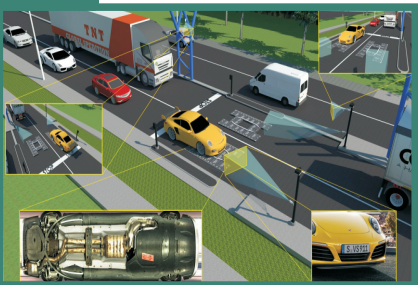
It is designed to control traffic lights and other hardware installed at traffic light sites providing traffic control and safety.

AUTOMATED WORKSTATION ON ACCOUNTING AND LOCATION OF HARDWARE FOR ARRANGEMENT OF ROAD TRAFFIC



It is designed to increase the level of automation of units' activity on accounting of the hardware traffic management, creating a unique information space based on a local network and modern software technologies.

VEHICLE BOTTOM SCANNING SYSTEM



It is designed for quick visual inspection of vehicles for the presence of foreign objects fixed on the bottom and forming of an appropriate base.

AUTOMATION SOLUTIONS SYSTEM OF AIR TRAFFIC CONTROL ("AGATA")

It is designed to automate the air traffic control in airfield and regional air traffic control zones.



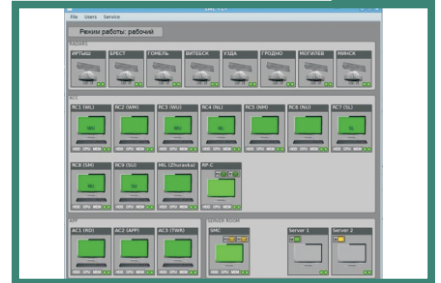
AUTOMATION SOLUTIONS SYSTEM OF AIRFIELD TRAFFIC MONITORING AND CONTROL ("ARGUS")

It is designed for automated monitoring of the ground traffic in the area of the airfield by a system for preplanning of emergency situations in accordance with level 2 of the ICAO classification (A-SMGCS level 2).



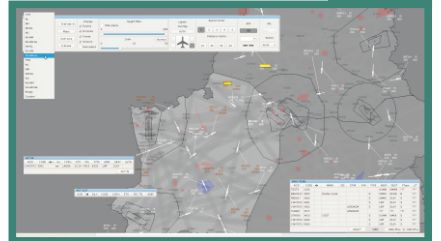
FACILITIES FOR THE TECHNICAL MANAGEMENT & MONITORING OF AIR TRAFFIC MANAGEMENT INFRASTRUCTURE

It is used for the automation of monitoring and control of software components and network infrastructure of the air traffic management system.



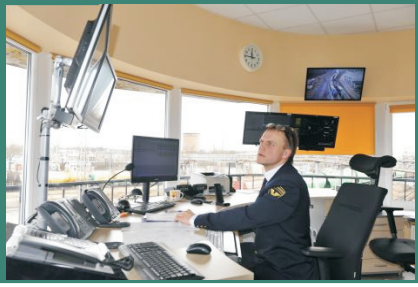
RADAR INFORMATION ASSOCIATION MODULE

It is used for associating of the radar information obtained from various sources to generate the information referring to the generalized air situation in the Flight Information responsibility area and home airfield and issuing it for different users to ensure reliable control and management of the air traffic. In the configuration with flight operator workstations, the Radar information association module product provides ATM functions with an average degree of automation.



AUTOMATION IN TRANSPORT AREA

AUTOMATED SYSTEM FOR RAILWAY STATION MANAGEMENT



It is designed for automation of technological processes for processing of car traffic volume at a railway yard, creation of a dynamic car information model referring to the status of receiving, dispatching, sorting and other railways of a railway station, arrangement of the station freight work, running of the archive of a station car-dispatching model.

SOFTWARE AND HARDWARE COMPLEX OF MICROPROCESSOR CENTRALIZATION OF RAILWAY POINTS AND "DNEPR" SIGNALS



It is designed for centralized management, control and diagnosis of hardware technical status ensuring the implementation of the transportation process.

SIMULATOR OF METRO ELECTRIC TRAIN DRIVER



It is designed for ultimate training checkup of drivers' training level, as well as assessment of driver's response and operations accuracy in emergency and abnormal situations.

VOR/DME RADIO NAVIGATION AIDS



VOR/DME radio range station (manufactured jointly with Thales Deutschland) is a radio navigation aid recommended by the International Civil Aviation Organization (ICAO) as an international navigation system for aircraft control during short and medium range flights.

AUTOMATION IN ENERGY AREA

AUTOMATED MEASURING AND INFORMATION SYSTEM FOR ELECTRIC POWER METERING

It is a combination of a hardware-software system with primary information converters and allows solving of the following tasks:

- electric power commercial metering;
- technological (technical) metering of electric power by enterprise units to detect electric power losses.



ENGINEERING SERVICES TO CREATE THE AUTOMATED MEASURING AND INFORMATION SYSTEM FOR ELECTRIC POWER METERING

Development, coordination and approval of the Technical Assignment for the creation of the Automated Measuring and Information System for Electric Power Metering. Development of the design estimates.

Supply of the Automated Measuring and Information System for Electric Power Metering equipment. Assembly, start-up and commissioning works and input in trial performance. The Buyer personnel training and metrological certification. Industry commencing, warranty and post-warranty servicing.



SYSTEM OF CONTROL, SECURITY & MANAGEMENT

A unique information and control complex for the automation of technological processes for converting and distributing of electric power with the integration of digital protection, telemechanical system, dispatch control system, automated system for monitoring and accounting of power. The set of software and hardware tools for monitoring, protection and control systems is intended for use in electric power substations with the class of 750/500/330/220/110/35 kW and electrical part of stations with the ability to adapt to various types of the primary equipment.



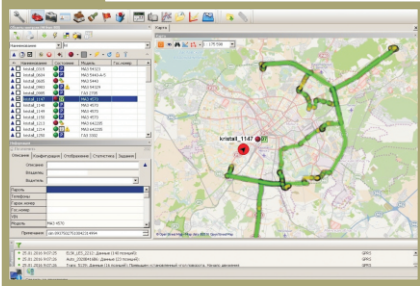
SERVICES IN ENGINEERING TO CREATE THE AUTOMATIC CONTROL SYSTEM FOR THE TECHNOLOGICAL PROCESS

Pre-design inspection, development of technical specifications, development of the design and estimation documents, equipment supply, construction and installation works, set-up and start-up activities, commissioning, training of the Customer's personnel, metrological certification of the system, warranty and post-warranty service, after-sales service.

INDUSTRIAL AND TECHNICAL PRODUCTS

NAVIGATION SYSTEMS & FACILITIES

MONITORING SYSTEM OF VEHICLES OF NAVIGATION-INFORMATION CENTER



It is developed to control, find the locality and control the traffic of vehicles and other mobile objects on the basis of GPS/GLONASS technologies.

TINS-02-07-4 COMMUNICATION DATA TERMINAL



The navigation terminal is installed on-board of a vehicle for remote monitoring of its movement via GPS / GLONASS satellite monitoring system.

CAREER GLOBAL MONITORING SYSTEM



The automation of work processes, diagnostics, displaying, collection and registration of the operational information on the status of units and assemblies of BELAZ mining dump trucks applies the technologies of the remote positioning based on GPS/GLONASS signals and wireless communication links.

"UVS-M" MULTIFUNCTIONAL DEVICE FOR CALLING OF EMERGENCY OPERATIONAL SERVICES



Installation of the ERA-RB system on a vehicle to determine the fact of a traffic accident and transmit the data to the system operator via GSM communication links.

INFORMATION AND CYBER SECURITY

INFORMATION PROTECTION AGAINST UNAUTHORIZED INTRUSION

Inspection of the automation facilities and development of technical specifications for the creation of information protection systems in information systems or automated process control systems.

Development and support of the implementation of the organization's information security management systems and documentation set for arrangement of the information security. Development of programs and methods, testing for compliance with the information security requirements. Certification of the information systems and objects of informatization.

INFORMATION CRYPTOGRAPHIC PROTECTION

Development, manufacturing, maintenance and elimination (recycling) of encryption tools. Operation, running of encryption tools certification testing. Creation of secure information and telecommunication networks using cryptographic tools for data protection.

INFORMATION TECHNICAL PROTECTION

Special analysis of the hardware used for data processing. Certification procedure of objects informatization. Carry out the works on the identification of special hardware applied for secret receipt of information.

SOFTWARE FOR THE CROSSPLATFORM SYSTEM FOR DATA INTEGRITY CONTROL IN AUTOMATED SYSTEMS

It is designed to implement the integrity control of software files and data stored in a PC and send security messages to the administrator about the software performance output. The control is carried out by comparing the current values of the hash function of the software files with the reference values that are generated when the software is configured, as well as by the administrator's command.

SERVICES:

- auditing of the information security of Buyer objects (including, documents);
- testing on trespassing by using the method of "white", "grey" and "black' box;
- monitoring and response to cyber threats by using of the specialized software from leading vendors based on the Center by three line analysts (it is possible to apply 24/7 format);
- testing of pilot projects, implementation and technical support of DLP systems and other software solutions;
- creation of documents in the information security domain (including the development of the information security management system for critical informatization objects).

DUAL-USE PRODUCTS

“MOBILE EMPLOYEE” SOFTWARE



It is designed to provide a unique information management system, data sharing of the operating personnel with a control service and data storage distributed by the systems.

PC OF БК402 SERIES



It is designed to perform computing functions at wheeled and tracked mobile objects with enclosed bodies either at parking lots or in stationary conditions.

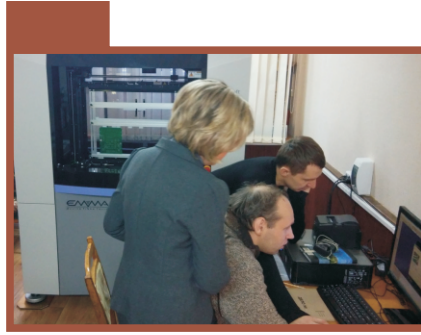
INTEGRATED AUTOMATED SYSTEM OF CONTROL (SURVEILLANCE) ACTIVITY

It is applied for:

- automation of procedures to form consolidated inspection plans, form selective inspection plans for monitoring of (supervisory) activities;
- automation of processes to form the consolidated plan tests, form the spot test of control (supervisory) activities;
- generation of reports on control (supervisory) activities by using software and hardware facilities;
- minimizing of cases on duplication of control measures by various controlling (supervisory) bodies and unreasonable assignment of inspections;
- creation of the unified republican database of ongoing (conducted) control (supervisory) measures and their results.



Checking of PC-board



Manufacture of PC-board



Assembly, disassembly, restoration of microcircuit bumped components in BGA cases

Automated assembly of PC-boards

Space-wired assembly of PC-boards and hardware

Manufacture of cables and harness

Powder polymer coating

Manufacture of tags (tablets, scale-plates, name-plates)

Testing and metrology

Maintenance and overhaul of mobile units

Services on development of the design documentation

Consulting services

IT-services

Implementation of the info security auditing, penetration test, LAN monitoring and response upon cyber threats

Services on UAV usage

Services on implementing the standard verification

Technical rate setting and standardization

Estimating (with a help of SXW software system)

LICENSES AND CERTIFICATES

COMPREHENSIVE SYSTEM OF COMPANY COMPETITIVE PERFORMANCE



OJSC "AGAT Control Systems - Managing Company of "Geoinformation Control Systems Holding" has developed, implemented and applies the Integrated Enterprise Competitive System built on the integration of requirements and provisions of international standards of ISO 9000 series for the quality management system of ISO series 14000 for the management of the environmental system of OHSAS 18000 standards and SA 8000 standards for the personnel social development management system, etc.



INTELLECTUAL PROPERTY



INFORMATION SECURITY



BUILDING CONSTRUCTION



TESTING AND METROLOGY



FIRE SECURITY



OJSC "AGAT - Control Systems" - Managing Company of
"Geoinformation Control Systems Holding"
117 Nezavisimosti avenue, Minsk, 220114, Republic of Belarus
Phone: +375 (17) 337 54 55; Fax: +375 (17) 374 24 50
agat@agat.by

Marketing & sales department
Phone: +375 (17) 305 90 66
market@agat.by
www.agat.by