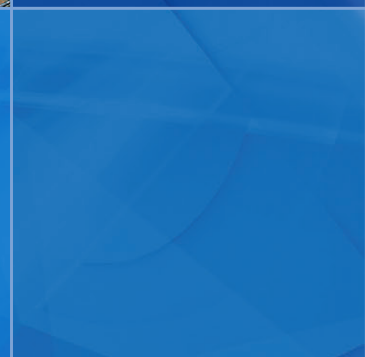
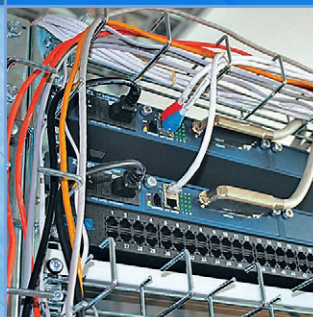




More than 45 years on the telecommunications market



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**Mr. Siarhei NOVIKAU,**  
**Director OJSC Giprosvjaz**

## Welcoming Remarks

*OJSC Giprosvjaz is a top-ranking organization in R&D and design and exploration under the Ministry of Communications and Informatization of the Republic of Belarus with more than four decades of experience on the telecommunications market.*

*Our role in the development of telecommunication networks in Belarus is well known to all the participants of ICT market. OJSC Giprosvjaz is notorious for its tradition of high quality and great potential in the field of network design and telecommunication facilities. We develop design and exploration solutions for all modern telecommunication technologies, both wireless and fixed. OJSC Giprosvjaz set the basis of the telecommunication infrastructure in Belarus.*

*OJSC Giprosvjaz performs telecom R&D projects and ICT market analysis, develops and implements long-term scientific and technical action plans, draws up regulatory documents in standardization, provides conformity assessment of telecommunication facilities and services, ensures international cooperation, etc.*

*We value our reputation and guarantee professionalism of our specialists and highest quality of our services. The implemented quality management system allows us to ensure compliance with all requirements of our customers.*

*OJSC Giprosvjaz is ready to engage in new and challenging projects. I can guarantee the highest level of services as well as prominent results delivered right on time by our highly qualified specialists.*

*We are open for cooperation!*



## About us

OJSC Giprosvjaz is a top-ranking organization in R&D and design and exploration under the Ministry of Communications and Informatization of the Republic of Belarus with more than 45 years of experience. Established in 1968, today Giprosvjaz productively implements all the latest innovations on telecommunications market in Belarus.

OJSC Giprosvjaz is highly experienced in communication systems design, long-term R&D activities in telecommunications, development and implementation of action plans, conformity assessment of telecommunication facilities and services.

We perform R&D in the following spheres: communication systems design, regulatory documents development, guidelines development for measuring communications facilities electric parameters, expert evaluation of communications facilities technical specifications and documentation. OJSC Giprosvjaz fulfills annual state and sector standardization plans on development and revision of national standards, regulatory documents and guidelines in the field of telecommunications.

We have successfully established a long-standing tradition of high-quality performance in design and telecommunication spheres. OJSC Giprosvjaz is open for cooperation and ready to engage in new and challenging projects. We guarantee the highest level of services as well as prominent results delivered right on time!

## Our history

**January 03, 1968** –  
Minsk department  
of concurrent engineering.

**April 01, 1970** –  
Giprosvjaz Institute,  
Minsk Branch.

**June 26, 1989** – Giprosvjaz-6  
Institute under the Ministry  
of Communications of the USSR.

**January 28, 1992** – Giprosvjaz  
Institute under the Ministry of  
Communications and Informatics  
of the Republic of Belarus.

**February 24, 1997** –  
Design and Research State-Run  
Enterprise Giprosvjaz.

**July 06, 2000** –  
Design and Research  
Republican Unitary Enterprise  
Giprosvjaz.

**June 12, 2009** –  
Open Joint Stock Company Giprosvjaz  
(OJSC Giprosvjaz).



## Corporate structure



**Mr. Andrei Ryukind,**  
*Deputy Director on Design and Exploration*



**Mr. Uladzimir IVASHKA,**  
*Deputy Director on Research and Development*

### DESIGN AND EXPLORATION DEPARTMENTS

Telecommunication Networks, Systems and Constructions

Architectural Design

Communication Systems Power Supply

Engineering Exploration

Cost Estimate

### ICT DEVELOPMENT DEPARTMENT

### TELECOMMUNICATION FACILITIES AND SERVICES CERTIFICATION CENTRE

### R&D LABORATORIES

EMC Laboratory

Terminal Equipment Laboratory

Communication Systems and Devices Laboratory

# Design and exploration

OJSC Giprosvyaz is one of the leading Belarusian enterprises in telecommunication networks design. We implemented hundreds of large-scale nation-wide projects.

Giprosvyaz was awarded with several Conformity Certificates that allow us to act as general design constructor, to draw up pre-investment and preliminary project documents and to work with buildings and constructions of any grade of difficulty.

## Architectural design

- Architectural design of buildings and constructions of any grade of difficulty
- Reconstruction projects
- Constructions reinforcement

### **OJSC Giprosvyaz performs architectural design of:**

- Radiocommunication and broadcasting objects
- Buildings and constructions

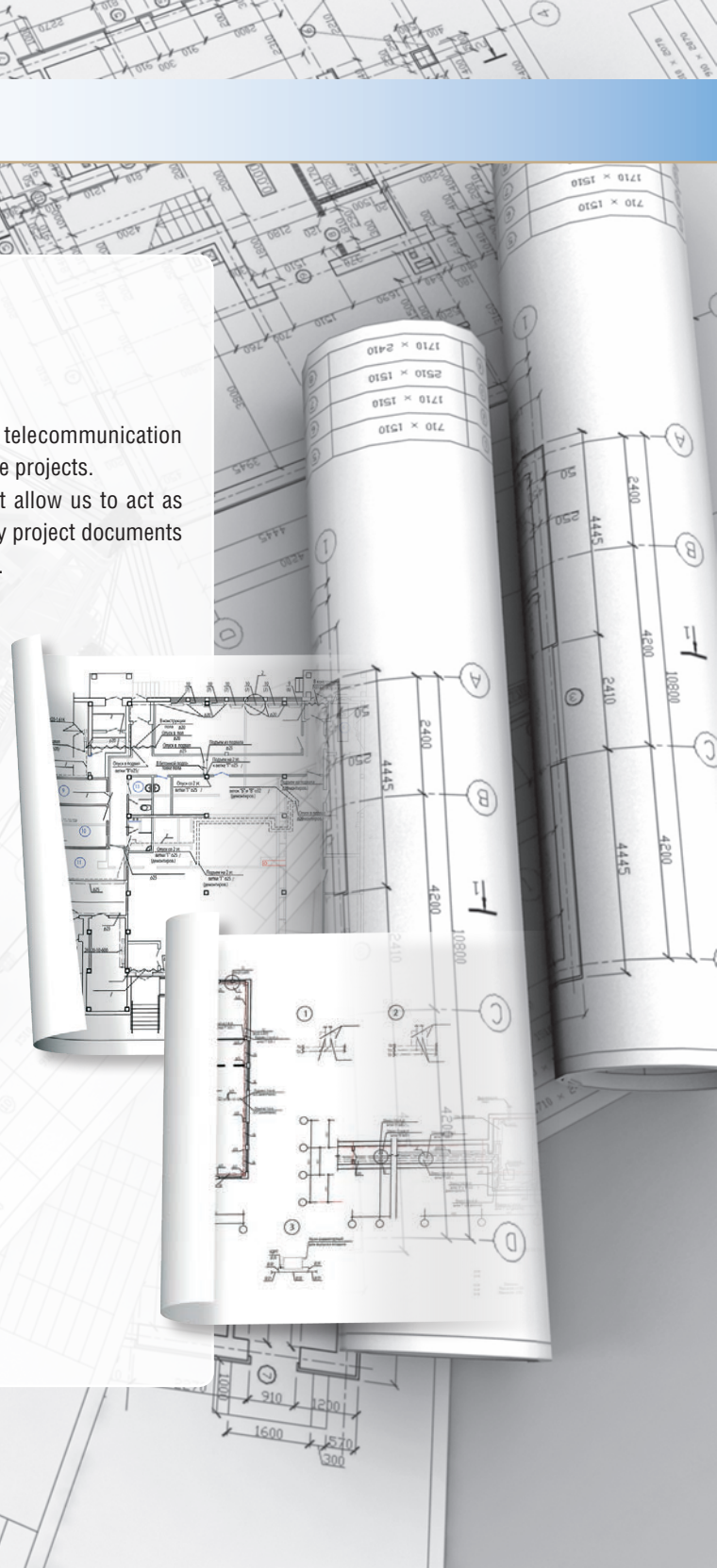
OJSC Giprosvyaz takes on projects in all climatic regions. Our technical equipment meets latest standards and allows for a full cycle of project documentation development and production.

## Mobile networks

OJSC Giprosvyaz provides project documentation for construction, modernization, reconstruction and expansion of mobile networks in Belarus.

### **We design:**

- Mobile networks
- Analogue and digital trunking networks
- Broadband networks
- Fixed wireless networks
- Multi-purpose networks





**We provide support and maintain design documentation during state expert review.**

**We ensure:**

- Optimal solutions
- Implementation of Modern telecommunication technologies
- Efficient use of frequency resource
- Optimal network development strategies
- High technical and economic indicators
- Full conformity with regulatory documents

**Safety systems**

**Safety systems design:**

- fire detection systems
- facility intrusion detection systems
- security systems
- video surveillance systems
- access restriction systems
- voice alert systems

**We guarantee:**

- Full compliance with applicable regulations
- Maximum adaptability to current legislation, production standards and user needs
- Wide range of advanced security services
- Minimum payback period

**Transport telecommunication networks and cable lines**

OJSC Giprosvjaz designs cable lines: low-frequency cables, optical transport networks, crossbar systems, digital switching system, etc.

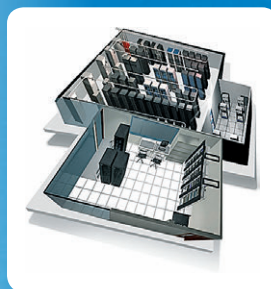
**Full-scale design of:**

- Multi-purpose networks
- Linear-cable systems
- Structured cabling systems
- Switching centres and nodes

- Data transmission systems
- Network management systems
- Multiservice networks
- Passive optical networks
- Computer networks
- Data centres
- TV and radio transmission lines

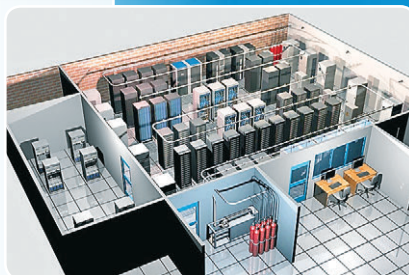
#### **We provide:**

- Pre-project inspection
- Data analysis
- Telecommunications market analysis
- Concepts of telecommunication networks development
  - Modernization solutions for existing telecommunication objects
  - Project design for individual elements of transport networks (lines, nodes, transmission systems, switching systems, network management systems)
  - Information security solutions
  - Technical and economical calculations



#### **We ensure:**

- Optimal solutions
- Implementation of modern telecommunication technologies
- Wide range of advanced telecommunication services
- Conformity with production standards
- Full conformity with regulatory documents





## Engineering exploration

Engineering Exploration Department under OJSC Giprosvjaz has successfully implemented numerous projects in various parts of Belarus. Engineering exploration is conducted by highly qualified specialists with the help of up-to-date technologies and in compliance with state regulations.

### Engineering exploration:

- Geodesic exploration
- Exploration of ground constructions
- Procurement of work permit
- Data analysis
- Up-to-date software and hardware

### We specialize in:

- Design, construction and operation of telecommunication objects:
  - radio relay links
  - mobile communication objects
  - special-purpose objects
- Industrial construction
- Territorial exploration



## ICT Development Department

**Tel: (+375 17) 331 69 17,  
e-mail: [iac@giprosvjaz.by](mailto:iac@giprosvjaz.by)**

### **R&D**

- ICT market analysis
- Recommendations on modern technologies implementation in Belarus
- Best-practice in QoS in telecommunication networks, standards and recommendations on QoS implementation in Belarus
- ITU, ETSI and IETF documentation analysis
- Best-practice in e-government implementation
- IoT concept and recommendations development
- Transition to IPv6
- ICT Development Index monitoring (according to ICT Development Index Republic of Belarus occupied 36<sup>th</sup> position in 2015 in comparison with 50<sup>th</sup> position in 2010)

### **Software and Web Development**

- Web development and maintenance of information resource on Quality and Service
- Web development and maintenance for governmental bodies (desktop and mobile)
- E-commerce solutions
- Automation software
- Software for project design and exploration automation

### **Regulatory Documents**

OJSC Giprosvjaz is the leading standardization organization in the telecommunication area in Belarus. We developed 60 state standards and





35 technical codes of practice in the field of telecommunications. Standardization Technical Committee in Telecommunication (TK BY 27) was established under OJSC Giprosvjaz.

### **Information Services**

#### ■ *Services upon subscription*

Subscribers gain access to scientific library with a wide selection of branch-wise regulatory documents (international, national, regional, branch-wise).

#### ■ *Access to analytical reports*

Subscribers are offered e-access to databases in certification, metrology, normative documents, numeration resource, weekly reports on recent trends in ICT.

#### ■ *Methodological services*

OJSC Giprosvjaz provides consultations in:

- Cost estimate for design and exploration works
- Local telephone networks design
- Power supply of telecommunication equipment
- Design of line structures for local telephone networks
- Design of line structures for backbone, area and technological cable communication lines
- Design of station buildings for backbone and area communication lines, data transmission networks



# Telecommunication Facilities and Services Certification Centre

**Tel: (+375 17) 290 96 06,  
Fax: (375 17) 237 37 66**

Telecommunication Facilities and Services Certification Centre under OJSC Giprosvjaz is an independent body responsible for conformity certification of telecommunication facilities and services. Certification Centre performs obligatory and voluntary conformity approval certification and issues conformity certificates and declarations registered in National conformity approval system of the Republic of Belarus. Accreditation number BY/112 030.01 dated 30.11.1993.

Certification Centre is legally and economically independent.

Conformity assessment is carried out within the framework of technical regulations of the Customs Union and National system of conformity approval of the Republic of Belarus. It is applicable to telecommunication devices manufactured by organizations in the Republic of Belarus as well as imported for the purpose of further realization and usage.



Certification Centre is governed by the legislation acts of the Republic of Belarus, regulatory documents in the field of technical regulation and standardization.

Conformity approval certification is conducted according to the rules and procedures declared in the following documents:

- TR CU 004/2011 Safety of low voltage equipment
- TR CU 020/2011 Electromagnetic compatibility of technical equipment
- TKP 5.1.02-2012 National confirmation of conformity system the Republic of Belarus. Certification of products. Basic concepts
- TKP 5.1.03-2012 National confirmation of conformity system the Republic of Belarus. Declaring of conformity of production. Basic concepts
- TKP 5.1.04-2012 National confirmation of conformity system the Republic of Belarus. Certification of performance of works, rendering of services. Basic concepts
- TKP 5.3.20-2007 National confirmation of conformity system of the Republic of Belarus. Order of procedure certification repair of subscriber terminal

Conformity assessment is carried out in the form of declaration or certification (mandatory or voluntary). Mandatory certification is performed to establish compliance with the requirements of technical regulations of the Customs Union (TR CU 004/2011, TR CU 020/2011) and state standards. Declaration is a form of compulsory conformity assessment implemented within the framework of the Customs Union.

Conformity certification of domestic and imported products is conducted at applicant's cost.

## EMC Laboratory

Tel: (+375 17) 331 11 13, e-mail: [emi@giprosvjaz.by](mailto:emi@giprosvjaz.by)

### Core activities

#### **Laboratory activities in the scope of national conformity system**

EMC laboratory performs conformity assessment of radio facilities since 1996. The laboratory has up-to-date equipment and is capable of measuring parameters of radio stations, transmitters and retransmitters, cellular mobile system devices and wireless broadband radio access equipment (GSM, UMTS, LTE, Wi-Fi, Bluetooth, ZigBee, etc.), radio relay equipment, RFID, short range devices (SRD), etc. The laboratory performs assessment of telecommunication equipment for compliance with TR CU 020/2011 Electromagnetic compatibility of technical means and TR CU 004/2011 Safety of low-voltage equipment.

EMC laboratory is certified by the System of calibration and accreditation of the Republic of Belarus, accreditation number BY/112. 1.00332 dated 1 June 1998. The laboratory is constantly broadening its accreditation area.

#### **Scientific, technical and information support of the Communications**

##### **Administration and its international activities within ITU-R.**

##### **Belarusian orbit and frequency resources management**

EMC laboratory analyses ITU-R and CEPT international regulatory documents (draft standards, reports, recommendations) and prepares proposals for the Communications Administration to be presented at ITU-R events. Our specialists take part in World Radiocommunication Conferences.

EMC laboratory performs research on national orbit and frequency geostationary resources expansion, prepares applications for new satellite networks, provides their coordination and legal support.







### EMC and wireless networks design

EMC laboratory has long experience in EMC of radio facilities, frequency territorial planning, band allocation. The laboratory has high-tech measurement equipment, productivity software; up-to-date EMC information resources, actual electronic maps. Qualified specialists are able to carry out EMC or wireless network planning project of any level of difficulty.



The laboratory has recently designed the following networks: wireless broadband access networks for RUE Beltelecom; fixed radio station network for the Ministry of Defence of the Republic of Belarus; GSM-R network for the Belarusian Railway Company. R&D project was performed on EMC of perspective radio communication systems and existing civil and special radio facilities operating in 790–862 MHz and 2,5–2,7 GHz bands.

### Regulatory documents, methodologies, productivity software

EMC laboratory draws up standards, technical requirements, methods of measurement and other technical documentation for radio facilities conformity assessment, designs productivity software. Here are some of our most prominent projects: Table of bandwidth distribution among radio services on the territory of Belarus; national standards and branch-wise technical requirements; productivity software for radio communication systems planning.



# Terminal Equipment Laboratory

Tel: (+375 17) 331 15 41,  
e-mail: [to@giprosvjaz.by](mailto:to@giprosvjaz.by)

## Core activities

- Telecommunication devices conformity assessment for compliance with technical regulations
- R&D projects
- Development of regulatory documents

Terminal Equipment Laboratory is certified as an independent and technically competent laboratory in accordance with the requirements of state standard STB ISO/IEC 17025–2007, accreditation number BY /112 02.1.0.0382 valid through 07.08.2020.

## Research and Development

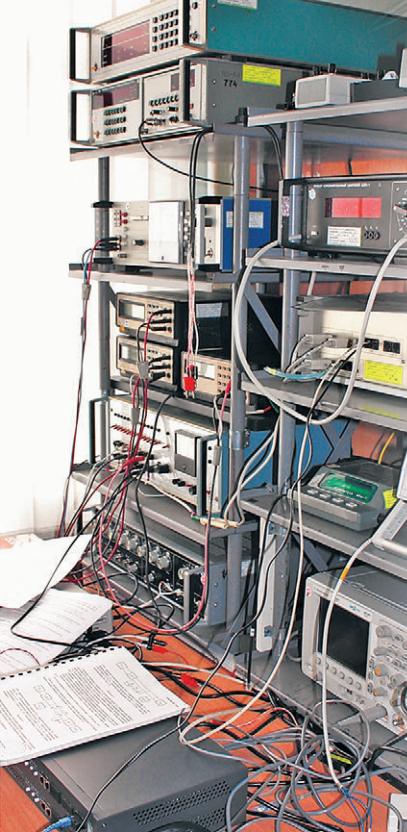
- protective devices for telecommunication equipment against overvoltage and overcurrent
- hardware and software measurement instrumentation and test plants
- Automation and productivity software
- Microcontroller software

## Conformance Assessment

Terminal Equipment Laboratory has all the modern measurement facilities alongside with software and hardware measurement







complexes. The laboratory performs the following activities:

- Assessment of telecommunication equipment for analog and digital communication lines for compliance with state and international standards
- IP networks interconnection devices assessment for compliance with RFC 2544 and RFC 2889 methodologies in order to define basic (RFC 1242) and extended (RFC 2285) parameters
- Assessment for compliance with RFC 3918, RFC 3511 and ETSI TS 102027
- Noise immunity assessment for compliance with EN 55024 (CIS PR 24), TP CU 020/2011.
- Overvoltage and overcurrent resistance assessment for compliance with ITU-T recommendations (K.20, K.21, K.45 and K.44)
- assessment of telecommunication equipment for compliance with IEC 60950-1-2003, TR CU 004/2011

### Cooperation

Terminal Equipment Laboratory is open for cooperation in:

- Conducting assessment tests for other certified laboratories as subcontractor
- Informational and technical collaboration
- Determination of functional and quality parameters of network interconnection devices
- Network devices compatibility assessment

Terminal Equipment Laboratory guarantees high results in data transmission and network reliability and substantially decreases costs of telecommunication equipment implementation.





# Communication Systems and Devices Laboratory

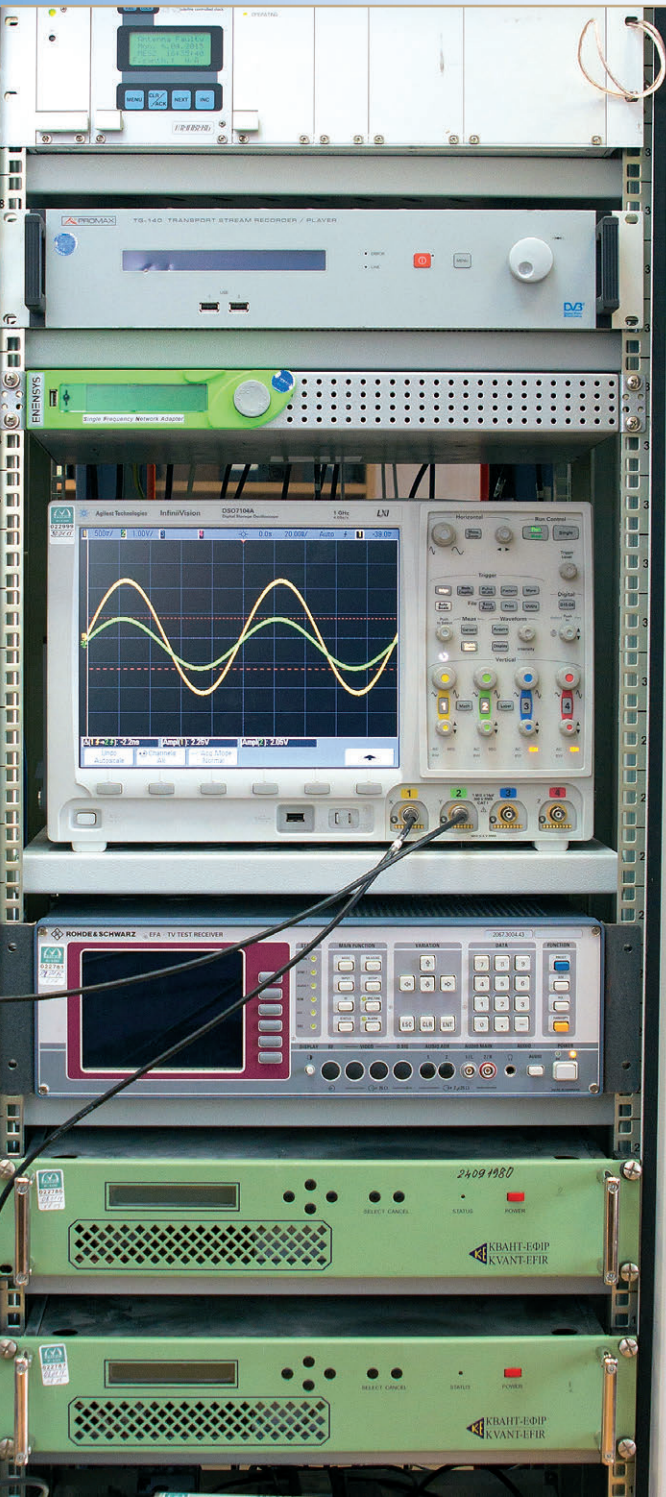
Tel: (+375 17) 237 34 49, e-mail: [sus@giprosvjaz.by](mailto:sus@giprosvjaz.by)

Communication Systems and Devices Laboratory conducts conformity assessment in the field of television and audio broadcasting. The laboratory performs assessment of the following equipment:

- DVB receivers
- DVB transmitting equipment
- DVB coding and multiplexing equipment
- Cable television distribution networks equipment
- Head-end stations with devices for forming, composition, amplification and conversion of cable television radio signals
- Optical interfaces of telecommunication equipment
- Digital television interfaces

Communication Systems and Devices Laboratory performs technical appraisal of analog and digital television and audio broadcasting equipment. The laboratory is responsible for





regulatory documents development for DVB-T/T2, DVB-C, DVB-S/S2, DAB, DRM, etc. and provides consulting services in equipment selection:

- Technical codes of practice
- State standards
- Industry-specific standards

Communication Systems and Devices Laboratory performs a variety of R&D projects on the development and implementation of digital television broadcasting, conducts scientific seminars in the field of digital TV..





# Advisory Center

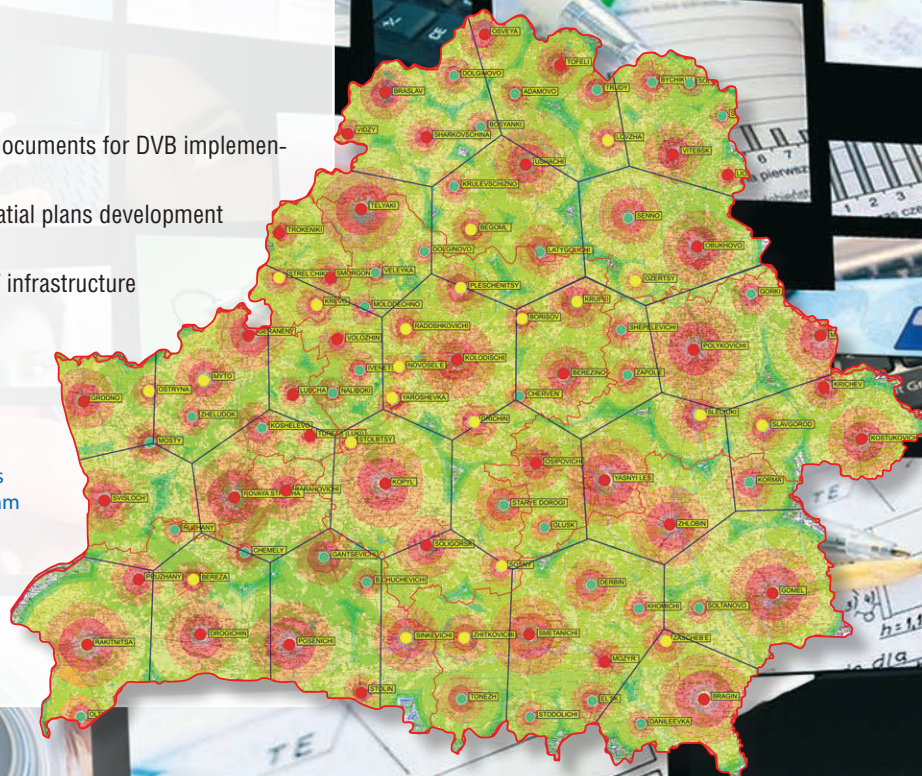
## We help RCC Member-States with analog to digital broadcasting transition

Advisory Center was established in Minsk to help RCC member-states with analog to digital broadcasting transition according to national implementation plans. It was founded thanks to joint activities of the International Telecommunication Union and the Ministry of Communications and Informatization of the Republic of Belarus.

### Activities

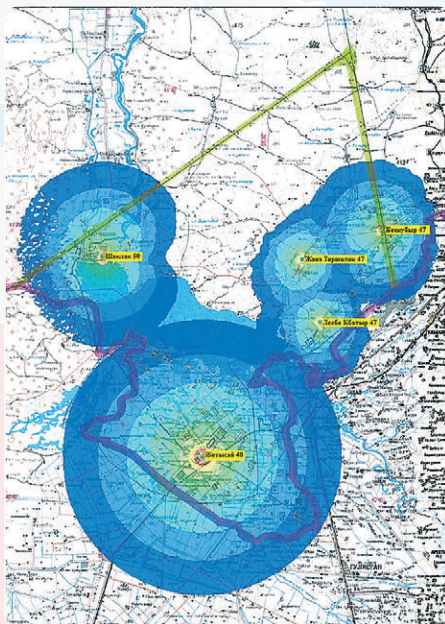
- recommendations and normative documents for DVB implementation development
- DVB implementation frequency-spatial plans development and appraisal
- construction documents for DVB-T infrastructure development

Regional frequency allocation plan of the Republic of Belarus developed under State program on the introduction of digital broadcasting.





- involvement in DVB implementation and operational testing
- conducting workshops and advanced vocational training for technical specialists



Digital broadcasting  
network coverage  
in South Kazakhstan

**The Center is responsible for:**

- Implementation of GE06 Agreement on digital terrestrial radio broadcasting for RCC
- Implementation of interactive multimedia applications of digital terrestrial radio broadcasting
- Implementation of single frequency DVB-T networks concept
- Development and implementation of DVB-T reverse channel

*We are open for cooperation with  
Communications Administration of CIS Member-  
States, RCC Member-States in the sphere of  
digital broadcasting implementation.*

Tel: (+375 17) 331 26 18.

Fax: (+375 17) 285 77 27

E-mail: [aup@giprosvjaz.by](mailto:aup@giprosvjaz.by)

# Licenses and Certificates

## Licenses

- License No. 02300/1973 issued by the Ministry of Emergency Situations of the Republic of Belarus to carry out activities to ensure fire safety
- License No. 02010/11267 issued by the Ministry of Internal Affairs of the Republic of Belarus to carry out security activities

## Certificates

- Conformity certificate issued by the State Standardization Committee of the Republic of Belarus states that OJSC Giprosvjaz quality management system applies to development of construction documents for telecommunication networks, systems and buildings, for buildings of all responsibility levels and for carrying out engineering exploration and meets the requirements of STB ISO 9001–2009
- Conformity certificate issued by Belarusian State Institute of Standardization and Certification states that OJSC Giprosvjaz quality management system applies to development of construction documents for telecommunication networks, systems and buildings, for buildings of all responsibility levels and for carrying out engineering exploration and meets the requirements of DIN EN ISO 9001:2008
- Conformity certificate No. BY/112 05.04. 010 states that system of labor protection management for development of construction documents for telecommunication networks, systems and buildings, for building of I and II responsibility levels and for carrying out engineering exploration meets the requirements of STB ISO 18001–2009

## Accreditation

- Certificate of compliance No. 0000186-ГП issued by the Ministry of Architecture and Construction of the Republic of Belarus certifies OJSC Giprosvjaz to act as general design contractor
- Accreditation certificate to carry out preliminary project documentation and pre-investment documentation development
- Accreditation certificate to carry out construction project drawings and specifications development for objects of 1-4 grades of difficulty.





## International Cooperation

OJSC Giprosvjaz is successfully engaged in cooperation with companies from Russia, Kazakhstan, China, USA, Japan and Korea. We are always ready to undertake new and challenging tasks in international cooperation and to provide the services of highest quality.

### Our international partners:

- International Telecommunication Union (ITU)
- International Organization of Space Communications Intersputnik (Russia)
- JSC Kazteleradio (Kazakhstan)
- Information-Analytical Computer Center LLC (Russia)
- Russian Federation Broadcasting Center LLC (Russia)
- OJSC Nizhny Novgorod Engineering Company Atomenergoproekt (Russia)
- Panasonic (Japan)
- Huawei (Hong Kong, China)
- Cisco Systems INC. (USA)
- Samsung (Korea)
- ZTE (China)
- Digital China Networks Limited (China)
- D-Link Corporation LTD (Taiwan)



Open Joint Stock Company  
"Giprosvjaz"

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E-mail: [aup@giprosvjaz.by](mailto:aup@giprosvjaz.by)

[www.giprosvjaz.by](http://www.giprosvjaz.by)