

## Announcement

### BSUIR at the China International Import Expo «China International Import Expo»

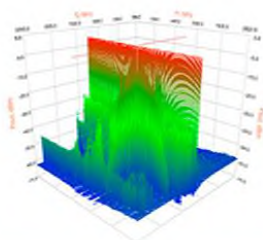
November 5 – 10, 2025  
China, Shanghai

University booth No. 4.1B4-03 will be located  
in pavilion 4.1 "Intelligent Industry & Information Technology"

China International Import Expo (CIIE, <https://www.ciie.org/zbh/en/>) is a popular trade exhibition that has been held annually since 2018. Last year it involved 152 countries and international organisations, 3,500 participants and more than 300,000 visitors. In 2025, CIIE will be held from 5 to 10 November at the National Convention and Exhibition Center in Shanghai.

The BSUIR exposition will include the following developments:

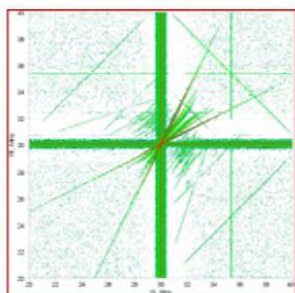
**ADFTS – automated dual-frequency test system for measuring and modeling of electromagnetic compatibility (EMC) of radio receivers.**



ADFTS system is used to detect, identify and measure characteristics of all possible interference channels and effects on the radio receiver.

#### Technical concept:

- radio receiver sounding is based on the radio location 'content' approach via the antenna input and on summing of two signals of the oscillation frequency;
- innovative method to present the results of testing and analysis in the form of 3D dual-frequency characteristics and a number of 2D or 2D and dual-frequency diagrams on the PC screen.



#### Advantages:

- it is the informative, comfortable and effective technology of EMC-testing and measurement of characteristics of radio receivers;
- it can be used when designing radio receivers and systems of HF, VHF, UHF, SHF and EHF ranges as well as radio frequency system components for various services (radar, stationary and mobile network, radio navigation), for civil and military aviation, satellite, marine and radio location systems.

**EMC-Analyzer** — specialized expert system for analysis of EMC of on-board and ground radio electronic systems.



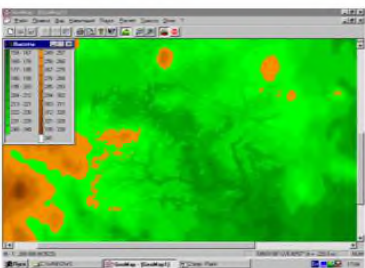
EMC-Analyzer system is used to analyze and solve EMC problems in on-board and ground radio electronic systems, as well as to design specifications of such systems in accordance with EMC requirements and to simulate radio-receiving process in severe electromagnetic environment.

**Advantages:**

- EMC-Analyzer significantly surpasses analogues in conducting detailed non-linear dynamic modeling of radio receivers operating in an extremely complex electromagnetic environment;
- it can simultaneously analyze a vast number of spurious electromagnetic couplings of various nature within the frequency band 0.1 MHz to 40 GHz and dynamic range up to 300 dB;
- EMC analysis is conducted at the system level taking into

consideration the interference effects of spurious electromagnetic couplings of various nature inside the on-board radio electronic system.

**EMC VTA** — technology, software and hardware complex for EMC analysis in complex groupings of various radio systems.



EMC VTA is used to analyze EMC of radio systems of various purposes, as well as to place these radio systems within the given territory effectively.

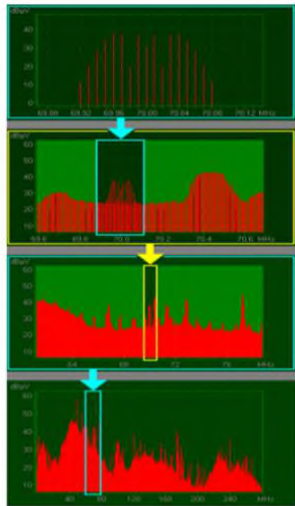
It is developed as a virtual polygon using the augmented reality technology and semi-natural modeling technique.

**Advantages:**

- high efficiency and low cost of EMC analysis in complex radio systems would allow to avoid expensive polygon testing;
- highly objective modeling of electromagnetic environment is based on modern geographic information systems and radio wave propagation models recommended by the International Telecommunication Union.



DNA-EMC – technology and software for discreet non-linear behavior simulation of radio-receivers in severe electromagnetic environment.

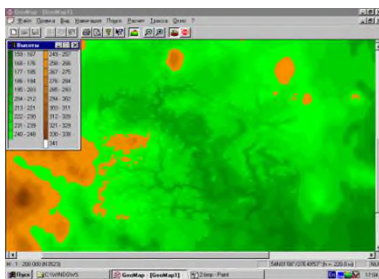


DNA-EMC has extremely high modeling productivity, which does not depend on the complexity of the electromagnetic environment. This technology takes into account the main types of nonlinear effects (intermodulation, blocking, cross modulation, conversion of local oscillator noise, amplitude-phase conversion, side channels of reception).

#### Advantages:

- it supports wide bandwidth and high dynamic range simulations;
- it can automatically identify the sources of nonlinear interference (for example, intermodulation sources).

GIS-RF – specialized geoinformation technology and software for design and frequency-territorial planning of radio networks.



GIS-RF technology is used to design and plan the use of radio frequencies.

#### Advantages:

- it is a time-tested set of technologies and tools for designing and frequency planning of radio networks, as well as for EMC analyzing and modeling of radio systems;
- it is based on widely popular geo-informational tools and platforms, e.g. MapInfo, Panorama, ArcGIS, etc.;
- it is the basis of the augmented reality technology, so called EMC Virtual Polygon or EMC VTA, which is designed to solve intersystem EMC problems in complex territorial groupings of radio systems of various services (fixed and mobile communications, radar, radio navigation, etc.) using semi-natural modeling methods;
- it can be used to solve EMC problems of complex electromagnetic environment using PCs on Windows OS.

[More about the developer](#)

Control, measurement and testing microwave equipment in the frequency range from 0.01 to 220 GHz



BSUIR has developed a range of devices that operate in the frequency range from 0.01 to 220 GHz: signal generators G4-MWM, microwave power meters PM-MWM, calorimeters PMC-MWM, scalar network analyzers SNA-MWM, and vector network analyzers VNA-MWM.

These instruments are used for calibration and verification of microwave measuring devices in the development and production of advanced systems for high-speed data transmission, radar, navigation, and communications, and are ensuring accuracy, stability, and secure operation.

#### Advantages:

- it can be integrated into measurement systems using standard Ethernet computer interface;
- it is included into the Belarusian and Russian State Registers of Measuring Facilities;
- it is a part of the national standards of the Republic of Belarus in the field of microwave measurements.

#### More about the developer

## Ultrasonic cavitometers

The university's own production facilities manufacture spectral-acoustic cavitation indicators, portable cavitometers, high-frequency and high-temperature cavitometers.

Cavitometers are designed to measure and control cavitation activity and surpass foreign counterparts in terms of functionality.

### Spectral-acoustic cavitation indicator



The device can be used in research aimed at establishing relationships between cavitation activity and the results of ultrasound exposure on substances, as well as physico-chemical processes in liquids and biological structures.

#### Advantages:

- it allows measuring the level of cavitation activity based on the frequency range specified by the operator in the cavitation noise spectrum, as well as other spectrum parameters;
- it combines spectrum measurement and analysis functions, allows visualisation of the cavitation noise spectrum, and performs the necessary mathematical calculations.

### Stationary and portable cavitometers



It is used to optimize ultrasonic technological processes, determine the presence and intensity of cavitation in hydraulic systems, and measure cavitation thresholds.

#### Advantages:

- it ensures separation of stationary and non-stationary cavitation contributions;
- it is equipped with a built-in memory card and USB connector;
- it comes with software for processing measurement results.

## High-frequency and high-temperature cavitometers

The high-temperature cavitometer is designed to measure and control cavitation activity in liquids and molten metals at temperatures up to 1000 °C. Application: metallurgical research and industry.

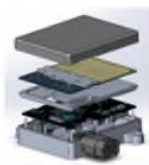
A high-frequency cavitometer is used to measure cavitation thresholds in the frequency range from 0.2 to 3 MHz. Areas of application: chemistry, sonochemistry, biology, medicine.

### Special features and advantages:

- full cavitation activity;
- digital output of measurements to the computer;
- recording of output signals as time dependences;
- it is equipped with a USB output and a memory card;
- it comes with data processing software.

### More about the developer

## All-weather long-range vehicle radar for collision prevention of large vehicles (e.g. buses, dump trucks).



### Advantages:

- unique manufacturing technology and tuning method for a digital radar antenna array;
- the design of the radar was developed taking into account the features of integration into various types of large-sized vehicles;
- open software and hardware level.

### Technical specifications:

|                                |                          |
|--------------------------------|--------------------------|
| Operating frequency range      | 76-77 GHz                |
| Detection range of a car       | no less than $\pm 250$ m |
| Range resolution               | 1.5 m                    |
| Relative velocity of an object | $\pm 200$ km/h           |
| Azimuth viewing angle          | $\pm 9$ degrees          |
| Azimuth resolution             | 3 degrees                |
| Supply voltage                 | 24 V                     |

### More about the developer