



## **The control and data information system of the scientific PLASMA-F experiment onboard upcoming Russian space mission Spectr-R**

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The control information and experimental data flow in the PLASMA-F experiment is presented.

The specific of the mission and main goal of achieving plasma, magnetic field and energetic particles spectrum information with high time resolution is defining the architecture of the PLASMA-F equipment and the onboard program structure.

The progress of microelectronics, availability of microprocessors with precise ADC and DAC and high-integrated components with small dimensions and low power consumption is used to design the flexible measuring devices with possibility of reconfiguring of their functions by commands from the Earth and in some cases automatically according to characteristics of the received information results. Most of the programs in the scientific devices may be changed during the flight.

Intellectual data treatment system SSNI-2 fulfills flexible data collection, archiving, processing, telemetry stream formation and can store the data aboard the space object during a few months in order to give the experimenter possibility to make the data analysis using step by step algorithms even if the telemetry channel is not capable to transmit the whole volume of information. As well all the program code in SSNI-2 may be changed from the Earth.

We try to achieve high reliability of the experiment by using sophisticated architecture with minimum amount of expensive components.

The design is in no sense attempt of receiving fully automated space research system but to give experimenter new level of the experiment control.