

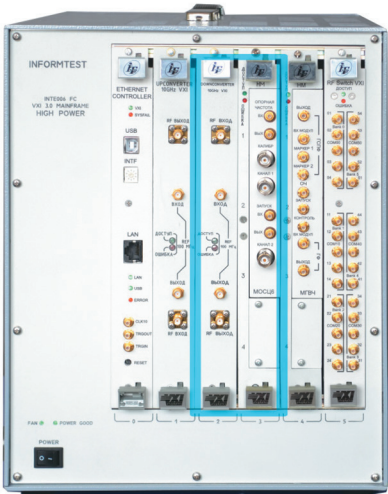
Modular spectrum analyzer

The Modular spectrum analyzer software and hardware complex for analyzing RF signals with a frequency of up to 10 GHz is intended for use in automated testing programs, research in the frequency domain of periodic RF and microwave signals, as well as for analyzing the parameters of signals with analog modulation (AM, FM, FM).

- Main functions:**
- Overview of the frequency band from 10 MHz to 10 GHz;
 - Search for vertexes;
 - Measurement of peak frequency and amplitude, power in the frequency band;
 - Demodulation of AM, FM and FM signals;
 - Measurement of modulation depth, frequency, and phase deviation;
 - Estimation of phase noise and calculation of its characteristics.

- Structure:**
- DOWNCONVERTER 10GHz (LXI or VXI version);
 - Digital MOS2 oscilloscope;
 - Software package;
 - Management library (API);
 - Software control panel.

- Design:**
- Structurally, the DOWNCONVERTER 10GHz frequency Converter is available in two versions - LXI device and VXI module. MOS2 can be installed on a mezzanine carrier in both LXI and VXI and AXIe versions. Thus, the spectrum analyzer can be designed as:
- as two separate LXI devices;
 - as two VXI modules installed in the VXI chassis;
 - in a combined version with any combination of both design form factors.



- The scope of the complex is radio engineering measurements, research and testing in laboratory and production conditions, testing of communication equipment and other telecommunications equipment.
- The principle of operation of the analyzers is based on superheterodyne transmission of the input signal to an intermediate frequency and its subsequent processing using an ADC with a digital processor.

Specifications

Operating frequency range 10 MHz – 10 GHz	Power measurement range -70 dBm to 15 dBm
Span 10 kHz to 10 GHz	The analysis bandwidth of the filter HR (RBW) 2 kHz to 400 kHz
Reference frequency source internal or external (MFOCH module)	Built-in if attenuator 0 dB to 20 dB in 1 dB increments
Relative error in measuring the frequency of the input sinusoidal signal When operating from an internal reference generator: • $\pm 5 \times 10^{-6}$ (10 MHz – 100 MHz) • $\pm 1 \times 10^{-6}$ (100 MHz – 10 GHz) When working from an external reference oscillator - MFOCH: • $\pm 5 \cdot 10^{-9}$ (100 MHz – 10 GHz)	The relative error of the bandwidth ± 20 %
	Absolute error of frequency response unevenness $\pm 1,5$ dB
	The absolute accuracy of power measurement ± 2 dB
The average level of natural noise at RBW = 1 kHz, given to the input • No more than -90 dB in the frequency range 10 MHz – 100 MHz • No more than -80 dB in the frequency range 100 MHz – 10 GHz	Relative level of intermodulation distortion of 3 orders of magnitude in the operating frequency range at RBW = 1 kHz • No more than -60 DBN in the frequency range 10 MHz – 100 MHz • No more than -50 DBN in the frequency range 100 MHz – 10 GHz
Range and error of measurement of the amplitude modulation coefficient (CAM) of AM signals 0-100 %, $\pm(0,6-5)$ %	Range and error of measurement of frequency deviation of the FM signal 10 Hz – 32 MHz, $\pm(1$ Hz - 1 MHz)
Range and error of measurement of phase deviation of the FM signal 0.1-320 rad., $\pm(0-5)$ rad.	Range of modulating frequencies in AM, FM, FM modes 0.2 kHz – 1000 kHz