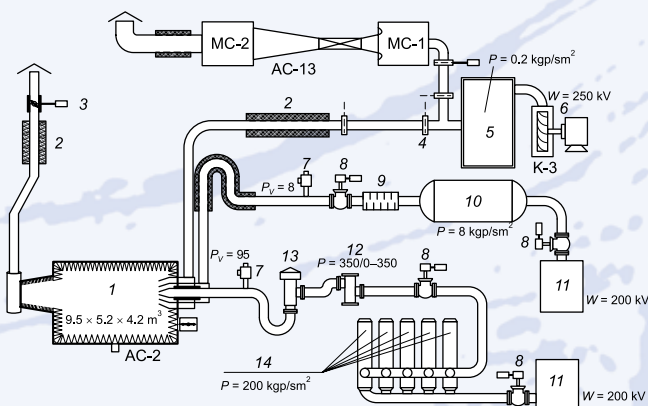




## Main Technical Parameters

Maximum acoustic pressure level .....	160 dB
Test section volume .....	211 m <sup>3</sup>
Test section dimensions .....	9.6×5.5×4.0 m
Operational frequency range .....	160...20000 Hz
Stagnation temperature .....	293 K
Maximum jet velocity for contour:	
1 <sup>st</sup> circuit: nozzle diameter 0.80 m .....	M = 0.25
2 <sup>nd</sup> circuit: nozzle diameter 0.10 m .....	M = 2.00
3 <sup>rd</sup> circuit: nozzle diameter 0.08 m .....	M = 4.00
Data acquisition-processing system:	
Multi-channel data acquisition-processing system B&K PULSE3560C,D	
Number of channels .....	32
Data processing rate .....	up to 200 kHz per a channel
Measurement accuracy .....	±0.5 dB



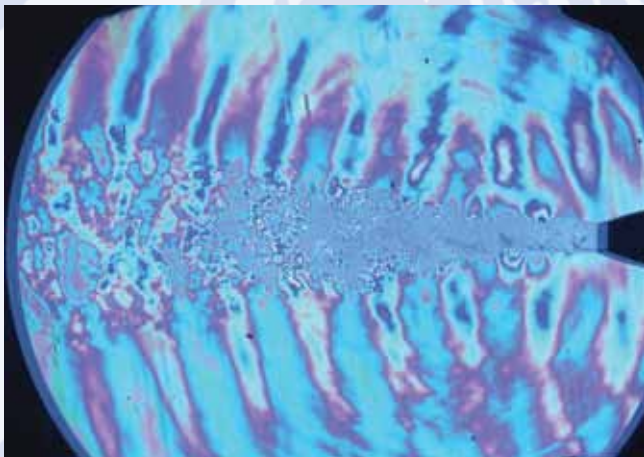
- |                            |                       |
|----------------------------|-----------------------|
| 1. Anechoic chamber        | 8. Valve              |
| 2. Sound attenuation panel | 9. Filter             |
| 3. Heating valve           | 10. Receiver          |
| 4. Damper                  | 11. Compressor VP30/8 |
| 5. Prechamber              | 12. Pressure reductor |
| 6. Electric motor          | 13. Cutoff valve      |
| 7. Emergency valve         | 14. Gas holders       |

## General Description

AC-2 acoustic anechoic chamber is used for measurements of aircraft element models under conditions simulating free sound field. The measurements include far and near sound field of cold sub and supersonic jets, jet turbulence measurements, creation of high-level sound fields, airframe noise investigations, noise of air-conditioning system. The experimental assessment of active noise suppression concepts and innovative technologies (e.g. plasma actuators for jet noise reduction) is another field of application of AC-2. Anechoic chamber is equipped with advanced multi-channel data acquisition-processing system for real-time acoustic measurements.

Additional systems:

- Optical equipment complex includes: IT 228 shear interferometer, spherical mirror of 500 mm diameter, high-speed digital recording equipment.
- Multi-channel complex to measure and control of the flow aerodynamic characteristics based on pressure transducers and NI DAQ-board.



## Capabilities

The following types of tests are performed in anechoic chamber:

- mid-scale model measurements of the near and far-field jet noise with co-flow of advanced aircraft engines;
- airframe noise measurements of mid-scale models (landing gear, high-lift devices etc.);
- acoustic loading measurements on aircraft and missile.



## Technological Advantages

- The unique 3-contour air supply system permits to investigate jet noise characteristics of bypass engines in the presence of co-flow;
- Test section dimensions permit to localize the sound sources of scaled airframe element models for take-off and landing conditions.



## Application

Experimental investigations in AC-2, directed on creation of environment friendly aircraft, are spent both within the limits of Federal Programs of Russian Federation, and under FP7 international projects of the EC. Acoustic anechoic chamber AC-2 is a part of Test complex "Aeroacoustics" accredited by the aviation register of Inter-State Aviation Committee and by Federal Agency "Rostechregulirovanie".

