

Application of Ourselves-developed Infrared Thermal Imagers in Laboratory Experiments



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Thermal imager based on uncooled microbolometric array



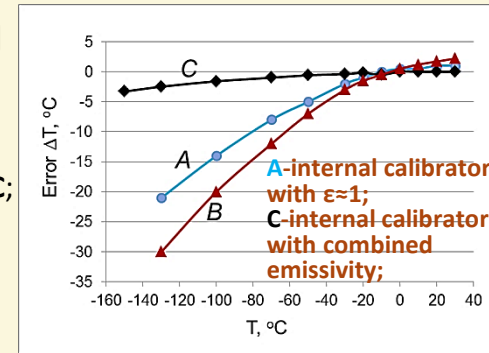
Array format: **384x288 pix**
Spectral range: **8÷14 μm**
Sensitivity (at 30°C): **0,07°C**
Temperature range: **-20÷ +300°C**
Measurement error: **2%**
Field of view: **22x16 grad**
Frame rate: **20 Hz**

Thermal imager based on cooled (77K) single element detector

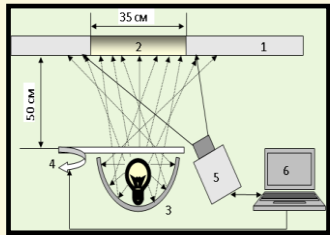


Spectral range: **8÷14 μm**;
Sensitivity (at 30°C): **0,1°C**;
Temp. range: **-150÷ +200°C**;
Measurement error: **3%**;
Frame rate: **1Hz**

Measurement error

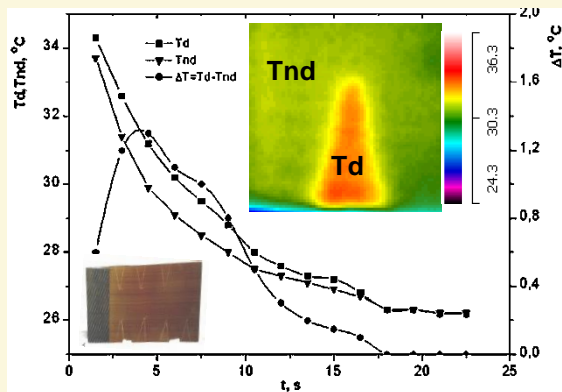
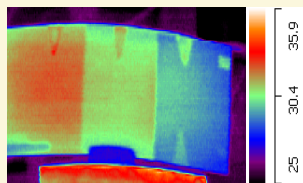


Detection of Flaws in Composite Materials of Aircraft Elements by Active Thermography



Setup diagram:

1-reference sample; 2-sample fragment; 3-IR source; 4-shutter; 5- IR imager.

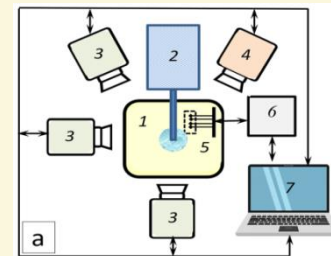


Thermal contrast T_d in the area of the defect vs time after heating

The study was supported by the NAS of Ukraine (grant "Development of Infrared Diagnostic Complex and Procedure for Detecting Flaws in Composite Materials of Aircraft Elements").

Study of the Dynamics of Surface Thermal Fields under Cryogenic Exposure *in vitro*

The study was supported by the NRFU (grant "Thermal imaging study of soft tissues with thermal injury and mathematical modeling of the processes accompanying it").



Setup diagram:

1-model system; 2-cryogenic instrument; 3-video cameras; 4-IR imager; 6-ADC; 7-PC; 5-microthermometers.

