

Calibration methods of high frequency thermal sensors for localized temperature and heat flux measurements in gas turbine and internal combustion application – AR&DB, DRDO



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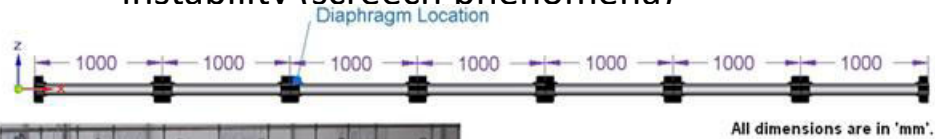
Objectives: Development of Thermal Probes and Methodology for Transient Measurements for Various Heating load Environments

Salient Features:

- In house fabrication techniques for coaxial surface junction thermal probes
- Fast response characteristics (50 microseconds), laboratory scale fabrications, cost effectiveness are some of the advantages.
- Establishing experimental calibration facilities for determination of characteristics parameters for thermal probes
- Development of an impulsive shock tube facility for real-time experimentation of thermal probe under instantaneous heat loads
- Real-time experiments with thermal sensor exposure to combustion environment in internal combustion engines to evaluate the measurement capability and endurance of the sensor for periodic change in heat load
- Sensor characterization and experiments in gas turbine engines (GTRE) for qualitative detection of combustion instability (screech phenomena)



Thermal probe



Shock tube facility, IITG



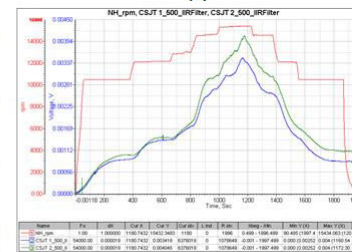
(a)



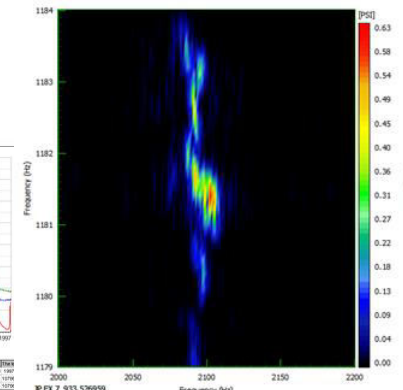
(b)



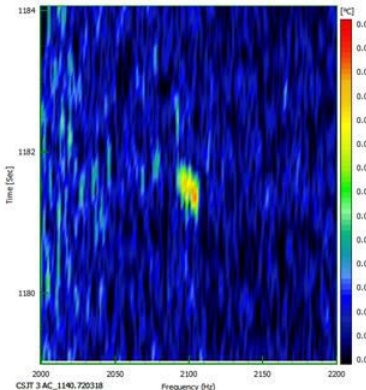
(c)



(d)



(a)



(b)

Gas Turbine Engine Testing of Probe at GTRE, Bangalore