TEXAS STATE UNIVERSITY

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Title: Remote Temperature Measuring System for Hostile Industrial Environments using Microwave Radiometry.

Background: Numerous industrial processes presently operate with either no temperature monitoring or inadequate monitoring due to current technology limitations. Present technologies either require contact with the object or, if they are optical pyrometers or infrared sensors, are unable to operate in the presence of particulates that block light and infrared rays.

Invention Description: This technology is able to remotely sense temperature despite the presence of obstructing particulates in the air. This invention uses long-wavelength microwave radiation emitted from the object, which is not scattered by particulates as much as shorter infrared or light rays are. It is capable of measuring temperatures from below room temperature up to 3000oF or higher, depending on the material under examination and the operating

Benefits

- Relatively low cost in comparison to conventional systems
- Uses as few microwave components as possible (for size reduction, etc.)
- Works in situations where infrared or optical temperature measurements fail environment.

Market Potential/Applications: Any industrial process with temperature-critical steps that are presently not temperature-monitored remotely could benefit from this technology. Dusty cement kilns, certain applications in the foundry industry, paper mills, plastic manufacturing, chemical manufacturing, and food processing are some industries that may benefit from this technology.

IP Status: US Patent issued **7,052,176 (May 30, 2006)**

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