



# Uncooled, Continuously Tunable Thermal Sensor Increases Thermal Sensitivity

**IP Status:** Issued US Patent; **Application #:** 11/805,240

## Uncooled, Focal Plane Array Uses Etalon with a Microbolometer

Uncooled, focal plane arrays are designed to absorb broadband light with extremely high thermal sensitivity. This causes difficulty for the array to process "hot spots" since the signals are highly uneven. A focal plane array has been designed that combines an etalon with a microbolometer in order to produce continuously tunable infrared detection.

### Thermal Sensitivity Increased

Tunable detection is produced by first filtering out unneeded portions of the spectrum, which reduces noise, and adjusting a mirror that reflects light to a microbolometer. This filtering of noise results in a detector 10-100 times more sensitive than comparable uncooled thermal sensors, and is on par with the best cooled detectors. This opens up applications where high spectral sensitivity and low cost are essential such as diesel engine monitoring or workplace detection systems.

### FEATURES AND BENEFITS OF UNCOOLED THERMAL SENSOR USING AN ETALON WITH A MICROBOLOMETER:

- continuously tunable, uncooled thermal detector that detects in the 8-14 micron range (long range infrared)
- 10-100 times more sensitive than comparable uncooled thermal detectors
- high spectral sensitivity
- low cost - can be fabricated using existing CMOS technology

### Technology ID

z05221

### Category

Engineering & Physical Sciences/Instrumentation, Sensors & Controls

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