

IMAGING
IS OUR
PASSION

▶ WHO IS STEMMER IMAGING?



STEMMER IMAGING is:

- ▶ Europe's leading independent provider of
 - ▶ Core vision technology
 - ▶ Solutions
 - ▶ Services

Our mission:

- ▶ To provide the users and developers of imaging technology with competitive advantage by adding value in the supply of quality components, expertise and support.

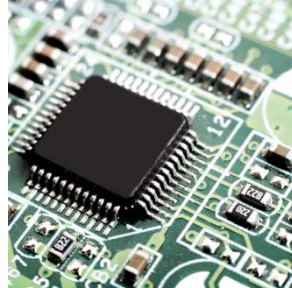
▶ THE MARKETS WE SERVE



Factory
Automation



Automotive



Electronics,
Semiconductor
& Solar



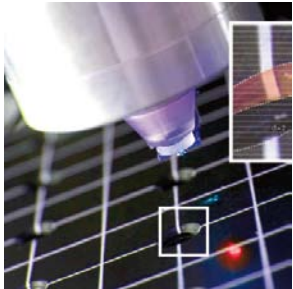
Print &
Packaging



Food &
Beverage



Pharmaceutical



Test &
Measurement



Medical
Imaging



Traffic, Rail &
Transport



Scientific
Research

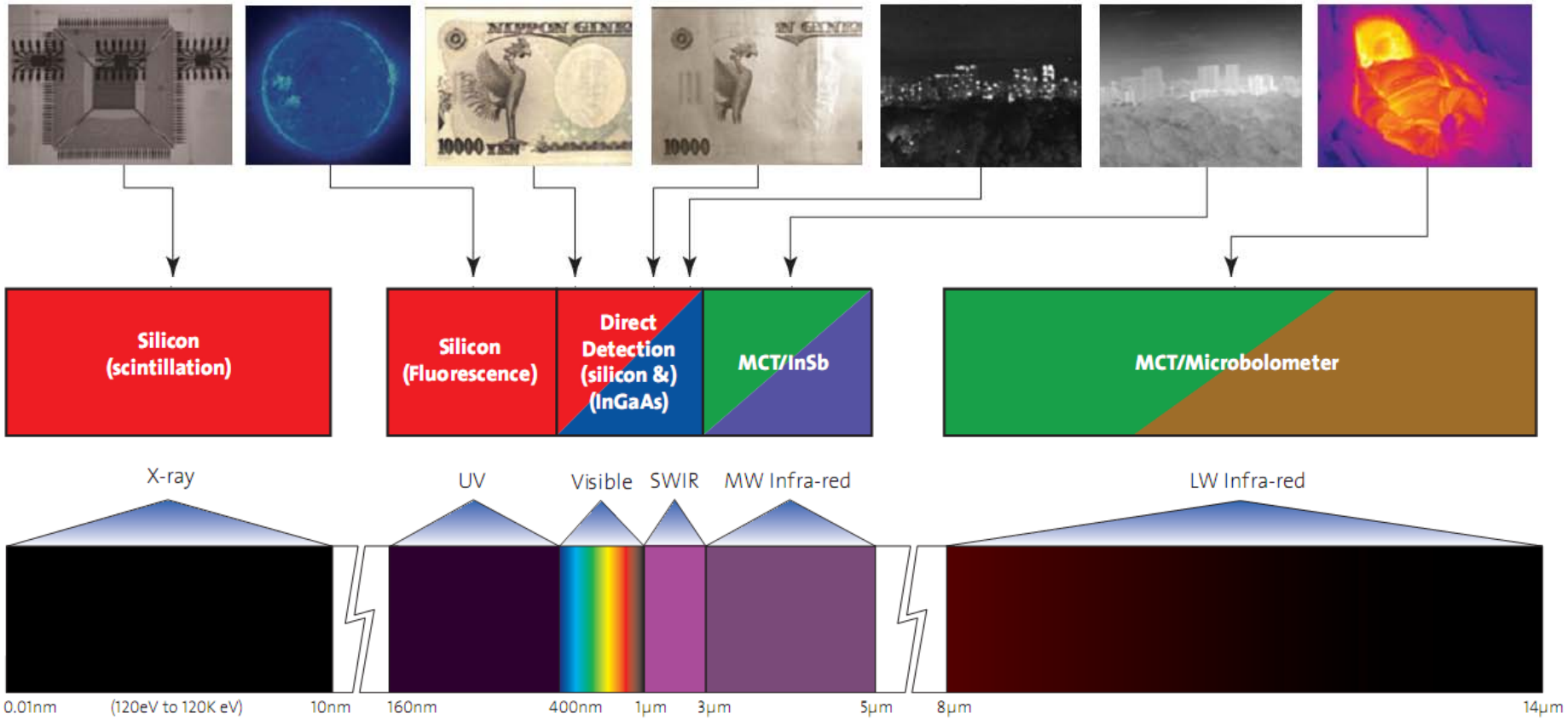


Defence,
Security &
Aerospace

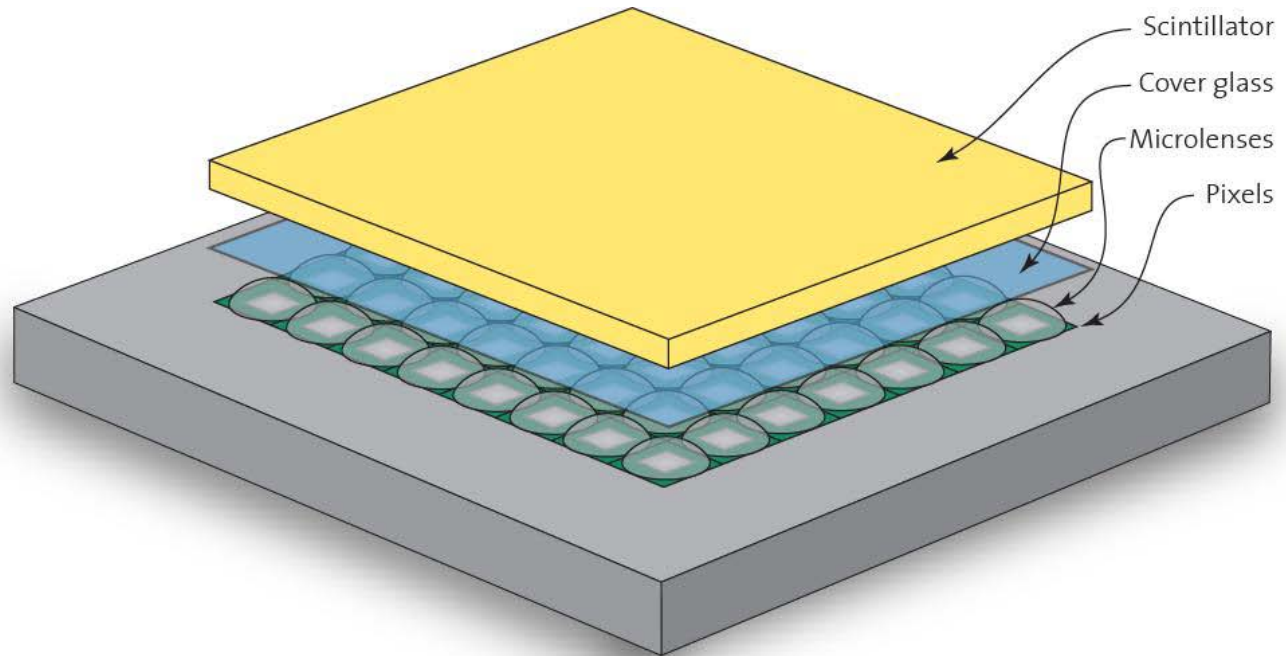


Sports,
Entertainment
& Broadcast

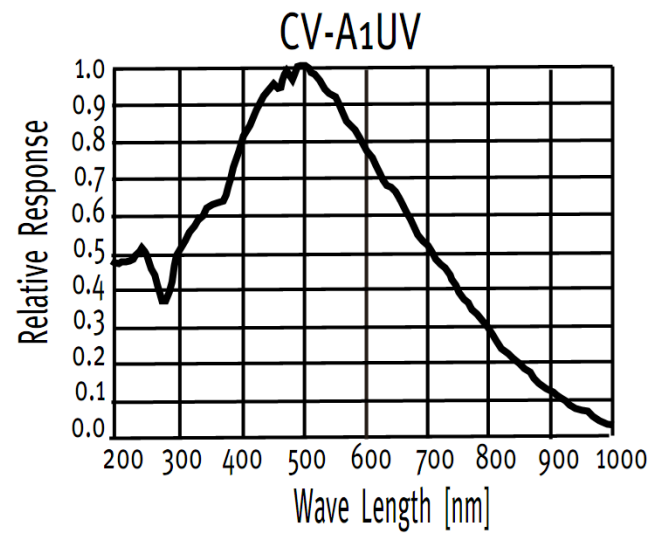
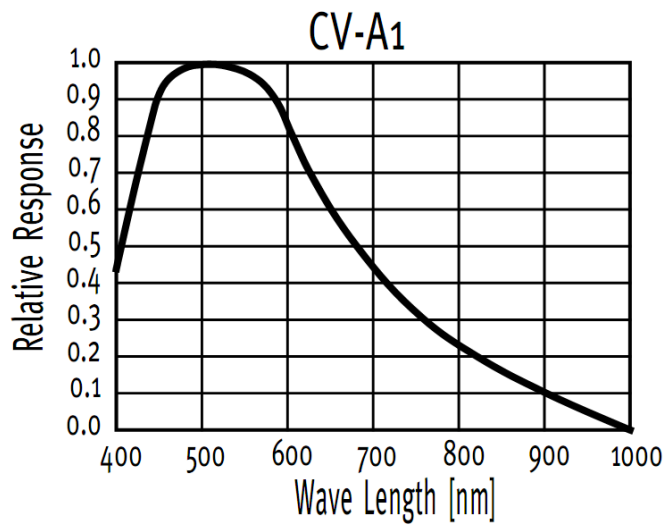
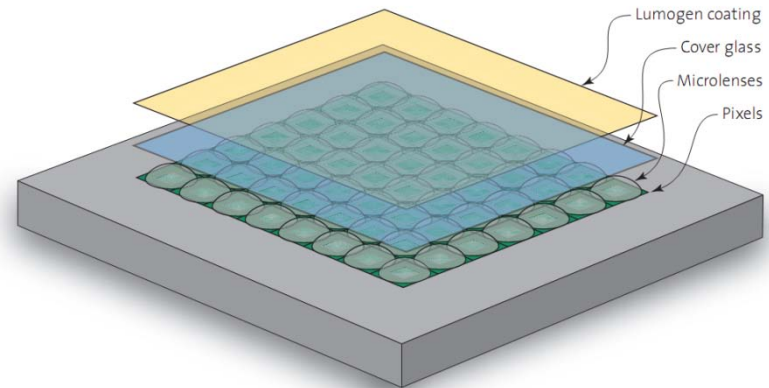
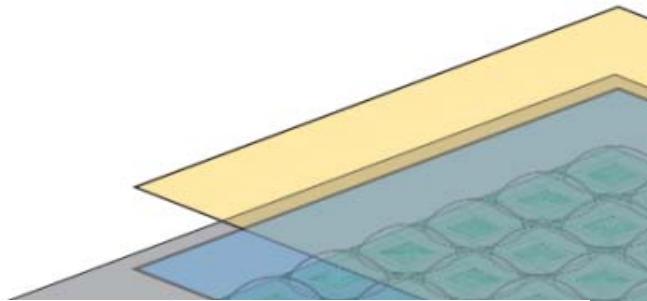
OUR IMAGING SPECTRUM



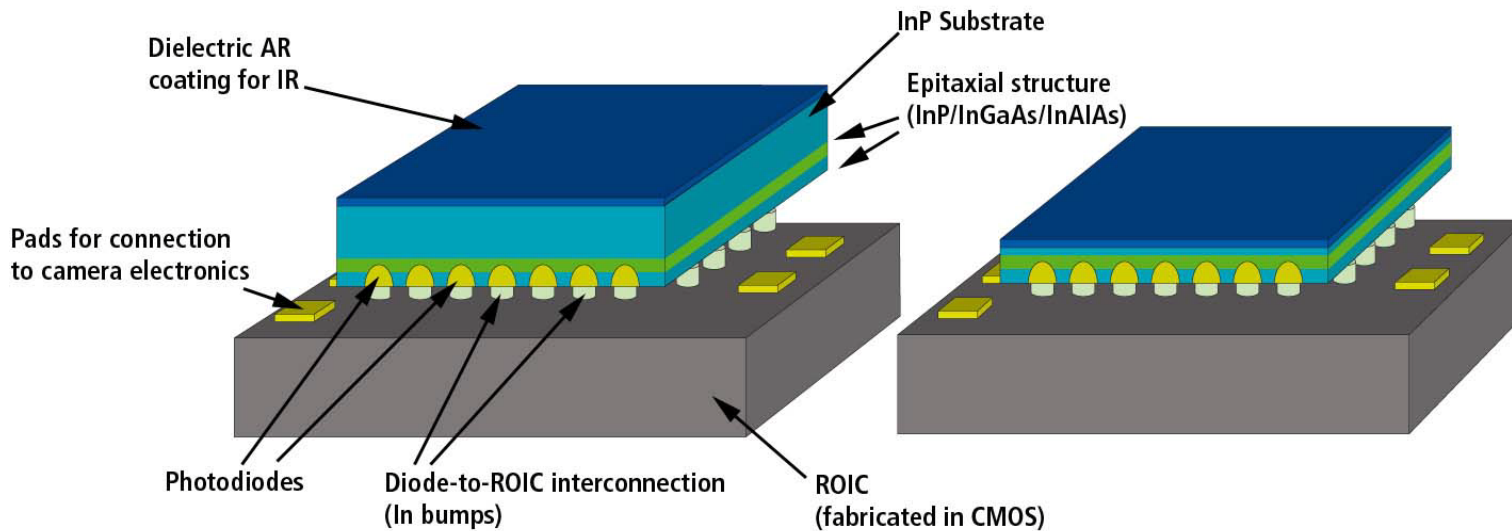
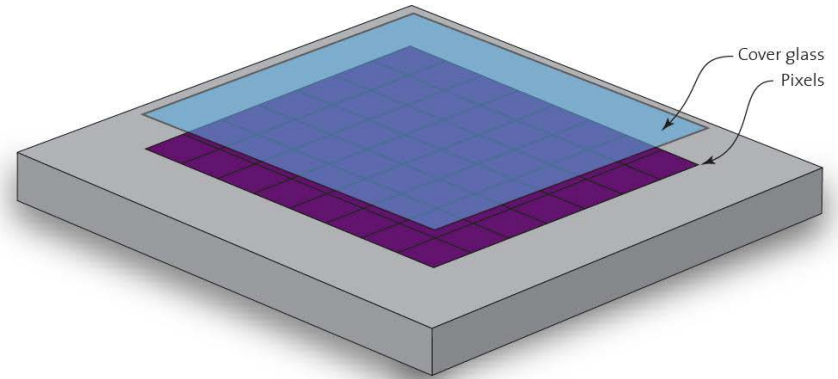
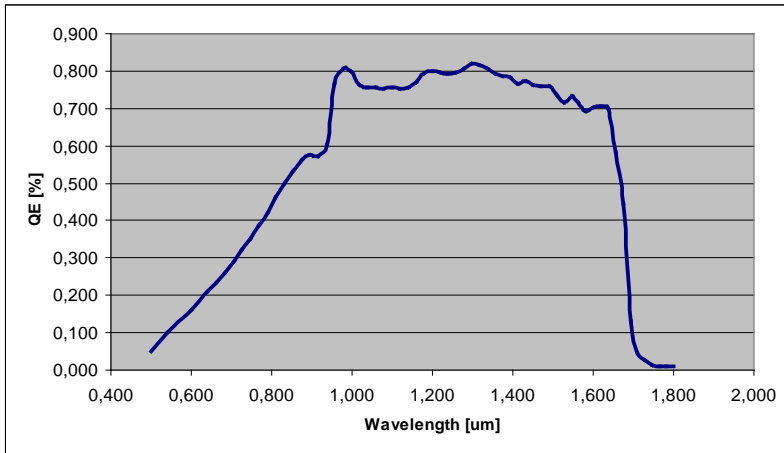
X-RAY IMAGING SENSOR



UV IMAGING SENSOR

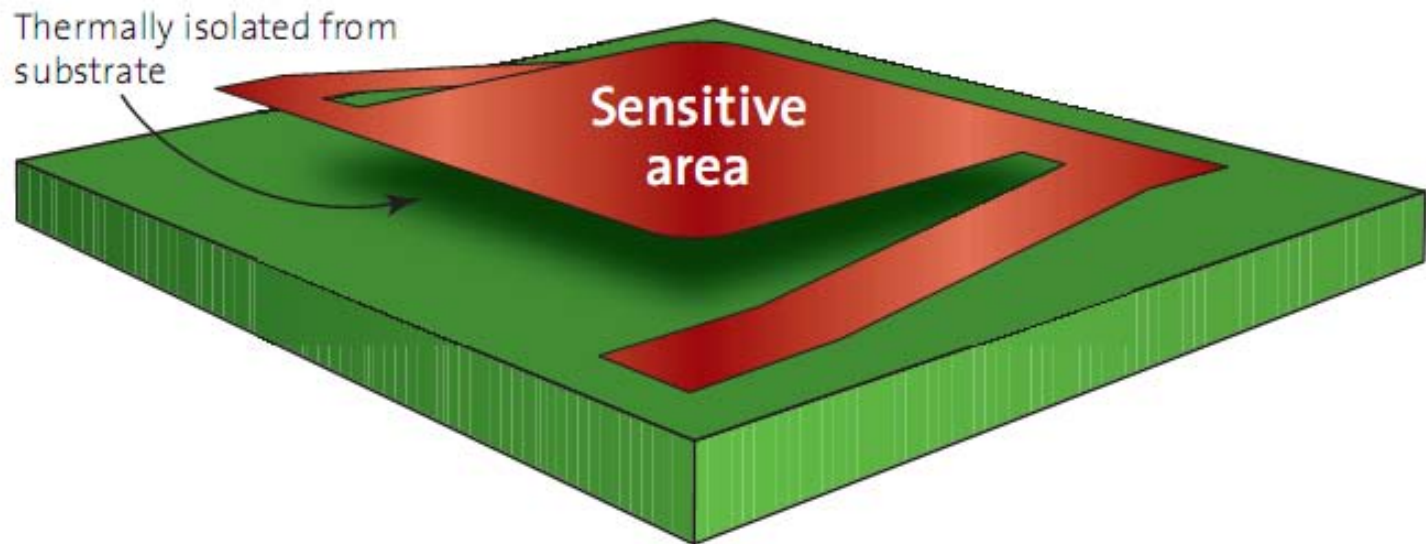


NIR IMAGING SENSOR



▶ LWIR IMAGING SENSOR

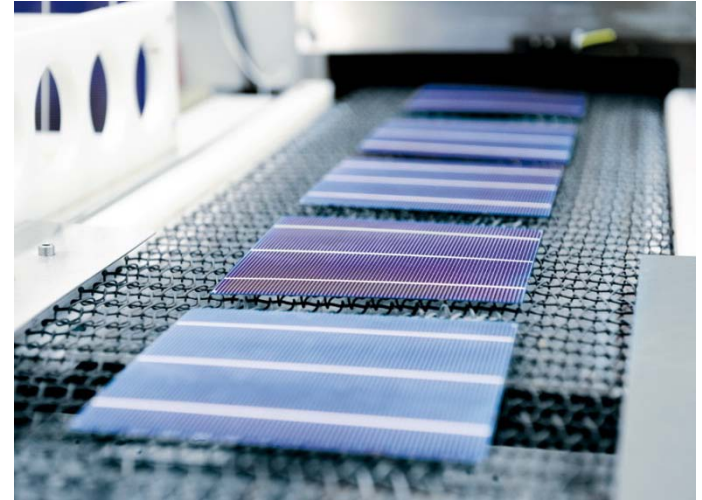
Microbolometer pixel



APPLICATION - SOLAR WAFER INSPECTION

EFFICIENT SOLAR CELL MANUFACTURE

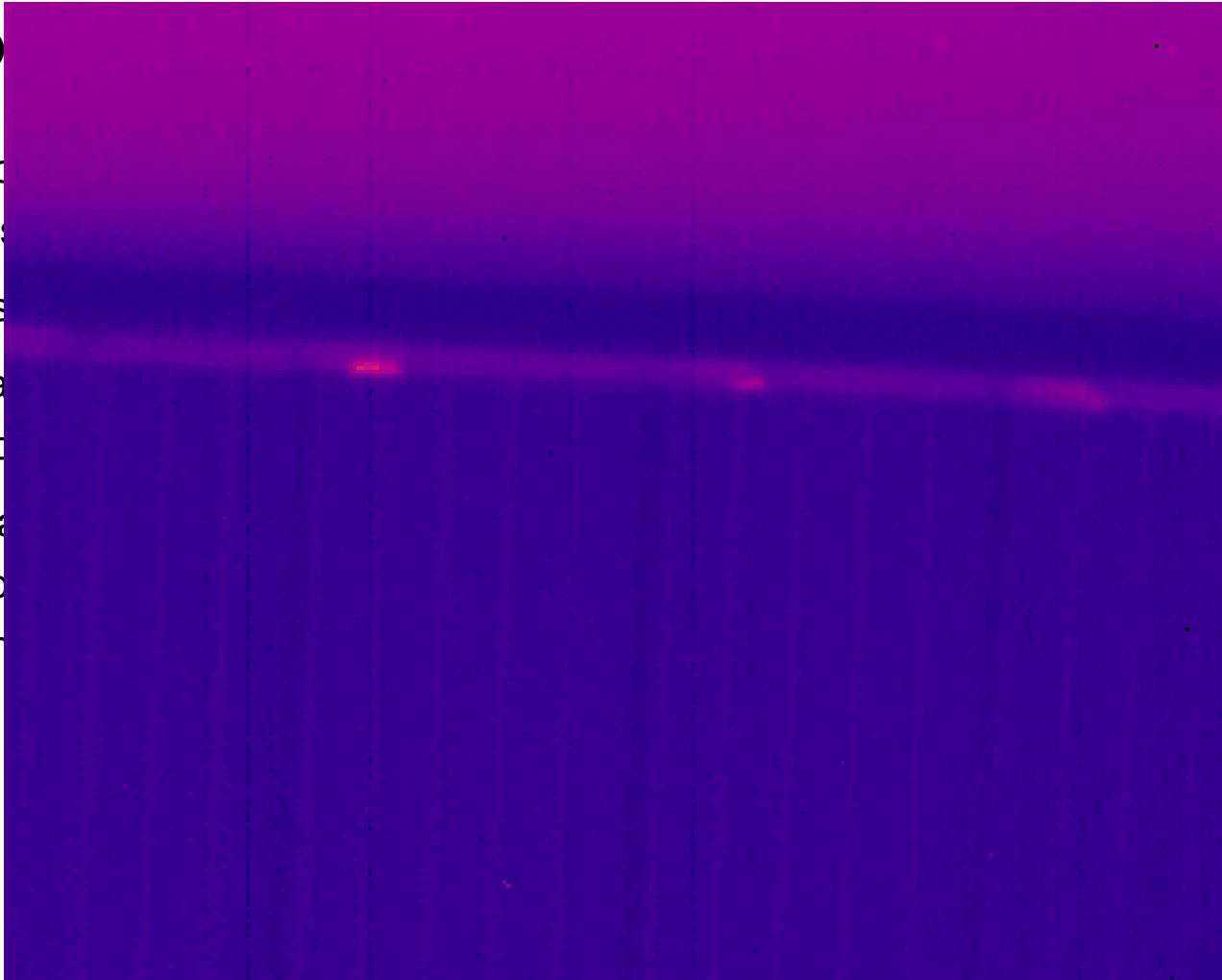
- ▶ Solar Cell manufacture is an expensive multistage process.
- ▶ Removing damage or low efficiency units as early in the process as possible saves money and helps guarantee quality
- ▶ Low efficiency parts are in the majority due to cracks or voids in the wafer material. These are almost impossible to visualise directly with or with conventional imaging techniques.



SOLAR WAFER SOLUTION

UNCOOL

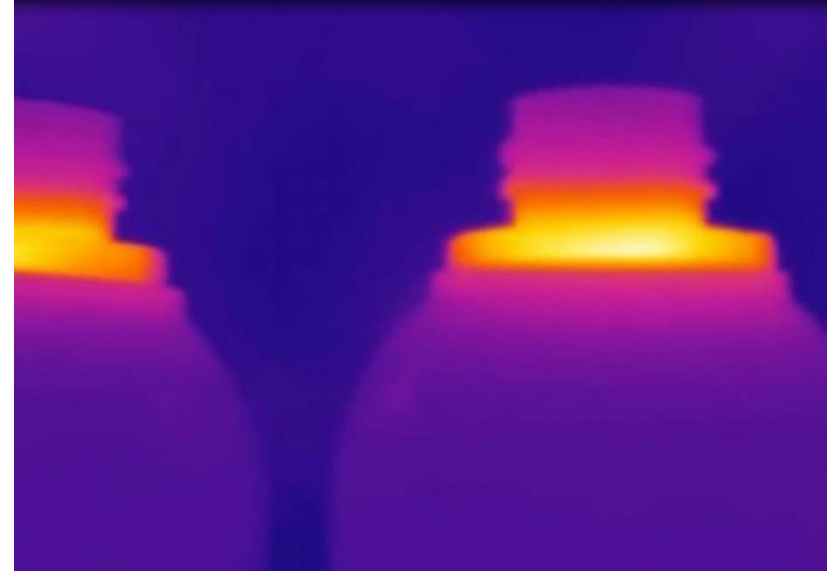
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APPLICATION - BOTTLE FORMING

PLASTIC AND GLASS MOULDING

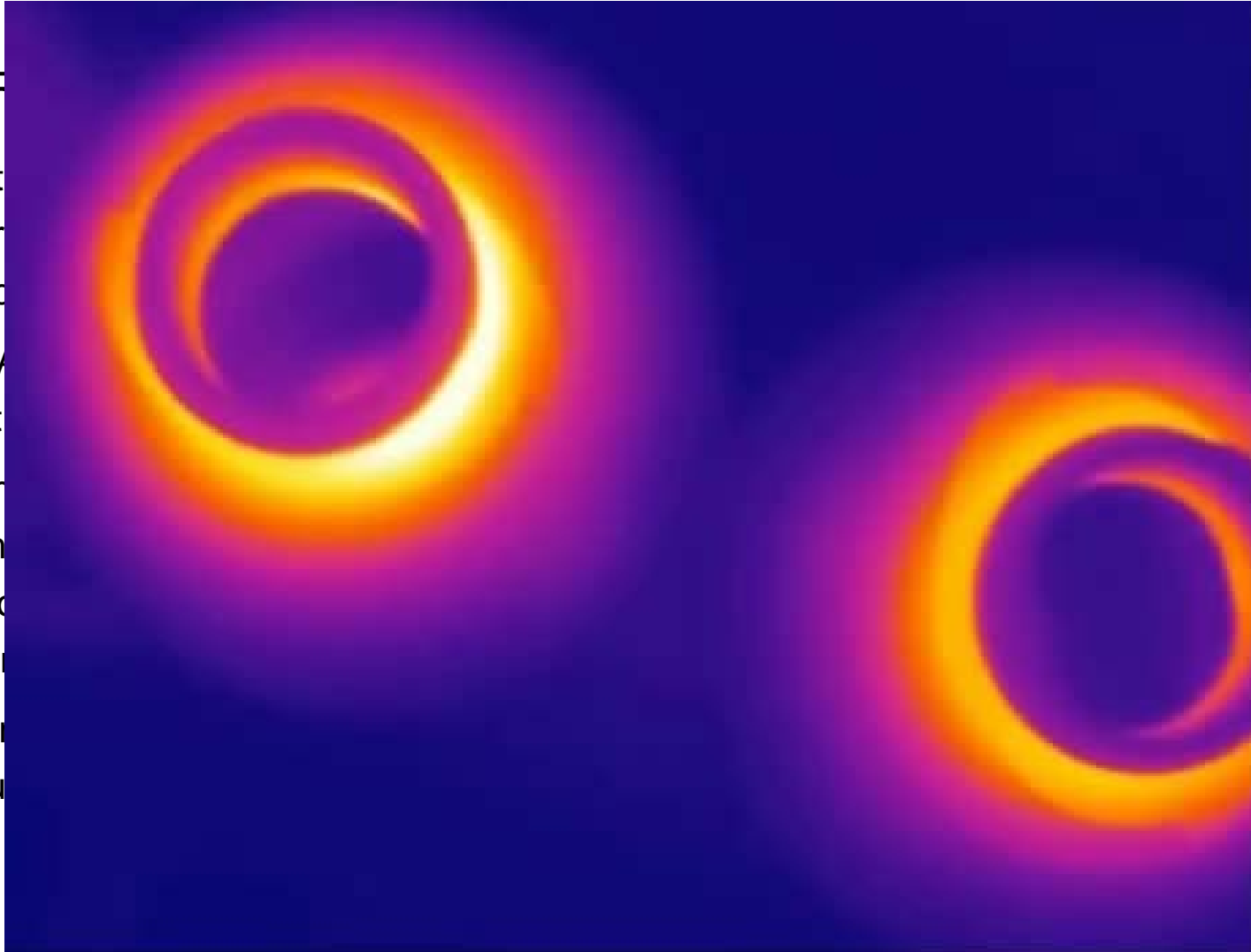
- ▶ Hot process moulding for plastic and glass bottles is required for quality control.
- ▶ Removing malformed bottles is needed before filling or forced cooling.
- ▶ High speed process.
- ▶ Accurate temperature measurements
- ▶ Repeatability



BOTTLE FORMING SOLUTION

THE

- ▶ Due to the high thermal conductivity of the InGaAs detector, the thermal drift is negligible.
- ▶ InGaAs detectors are available in various sizes and configurations, allowing for exact matching to the application.
- ▶ Thermal drift is minimized by the use of the InGaAs detector, which is controlled by a weak current source.
- ▶ Accurate and uniform illumination is achieved by the use of the InGaAs detector.



▶ APPLICATION - CLOUD MAPPING

AUTOMATED WEATHER MAPPING FOR SMALL AIRFIELDS/AIRPORTS

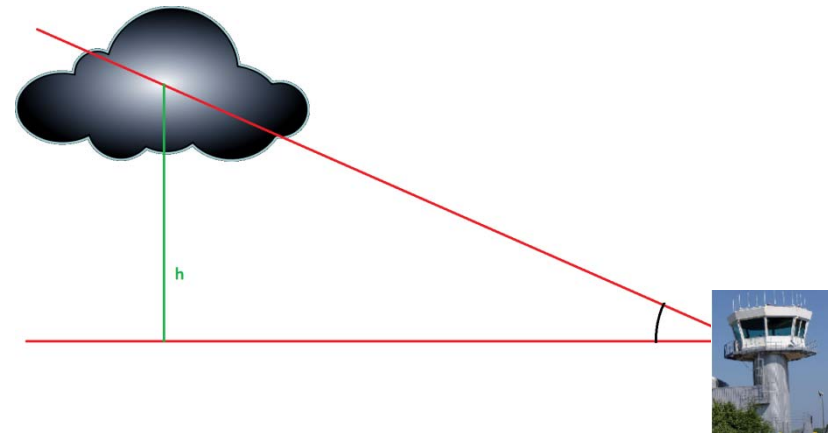
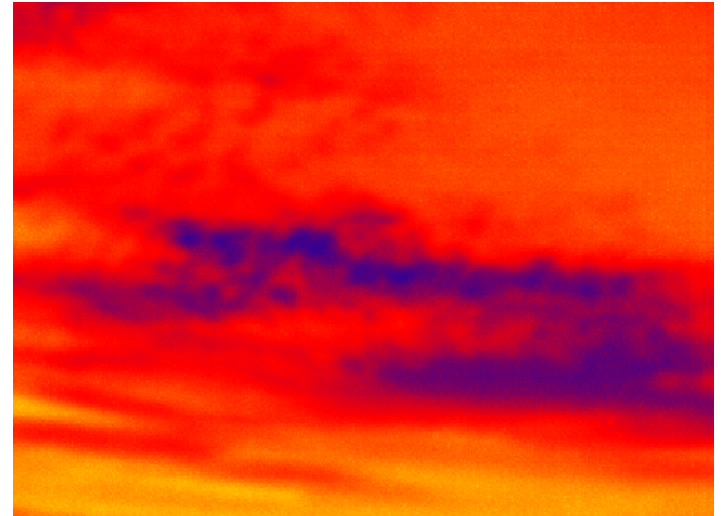
- ▶ Minute by minute high precision local weather mapping system.
- ▶ Differentiating between different clouds identifying 3D location.
- ▶ Minimal cost per installation
- ▶ Simple robust technology



▶ CLOUD MAPPING SOLUTION

LWIR MICROBOLOMETER CAMERA

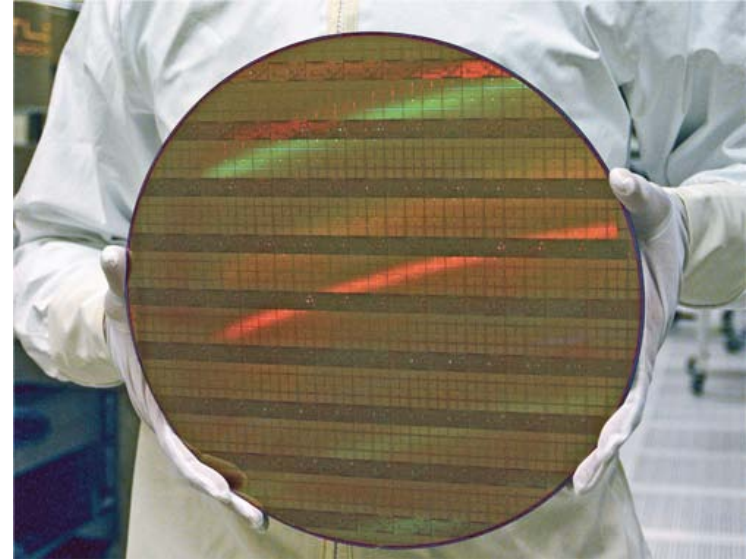
- ▶ By measuring the cloud temperature and comparing it with the local temperature we can calculate its height.
- ▶ Using the high measurement, the angle of the cloud in the sky and the rotation of the camera the cloud can be mapped to a 3D model.
- ▶ Minimal cost per installation 1 camera + Pan tilt unit.
- ▶ Simple robust technology (No RADAR arrays or similar)
- ▶ Possible to automate a scan to assist in remote weather monitoring and airfield protection.



▶ APPLICATION WAFER ALIGNMENT

BOND MACHINES FOR THE FUTURE

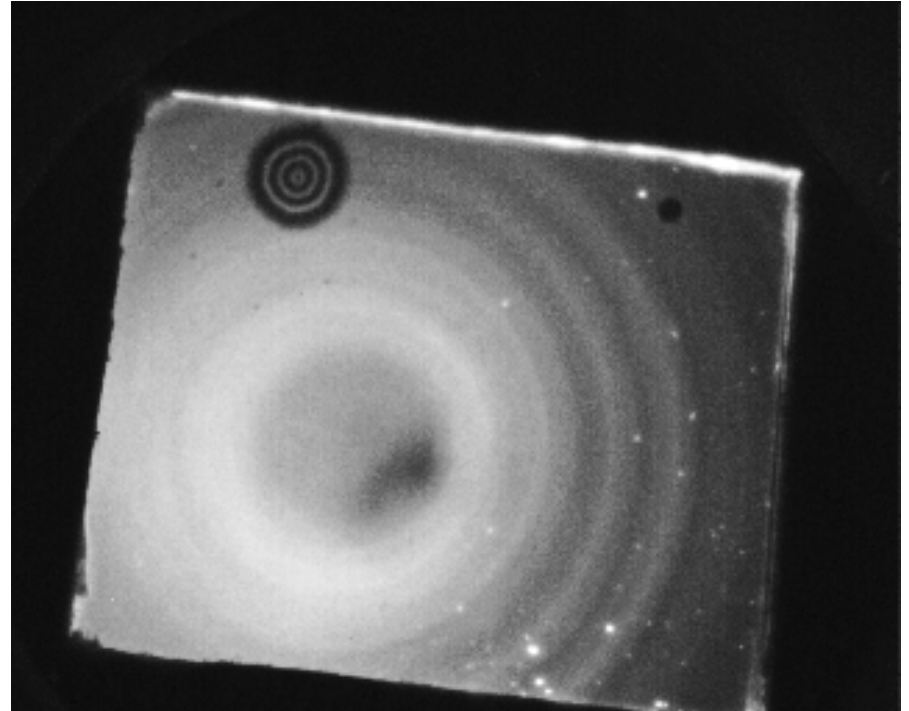
- ▶ Increasing yield and accuracy required for wafer bonding processes
 - ▶ MEMs encapsulation
 - ▶ 3D IC stacking performance
 - ▶ Increase performance by reducing signal transmission distance.
-
- ▶ Wafers need to be aligned
 - ▶ When Doped
 - ▶ When hot
 - ▶ Ever increasing accuracy.



▶ WAFER ALIGNMENT SOLUTION

COOLED AND UNCOOLED NIR/SWIR

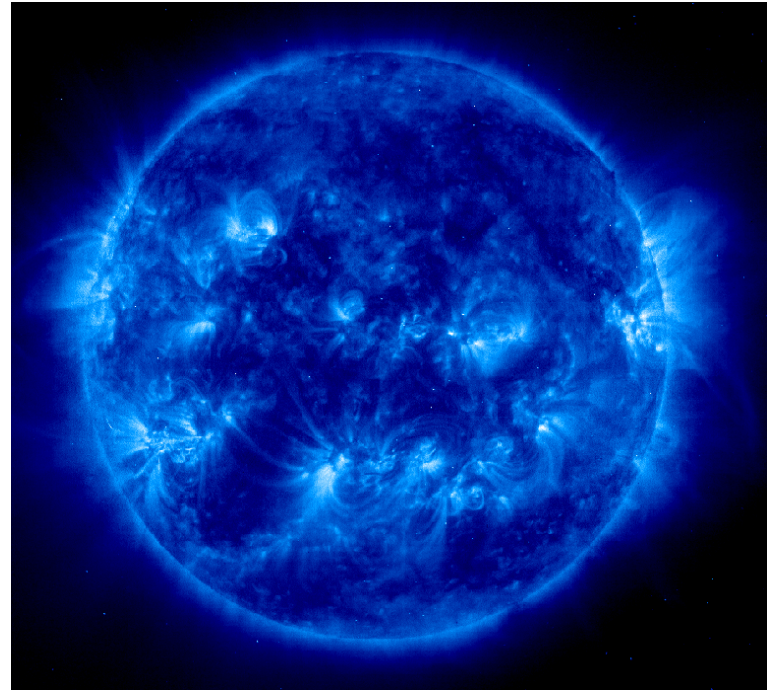
- ▶ Si is more transmissive in the NIR and SWIR
- ▶ This transmission is more easily maintained for doped Si.
- ▶ Heated wafer's transmission peaks are shifted towards the longer wavelengths
- ▶ Increase performance by reducing signal transmission distance.
- ▶ Better through wafer imaging is achieved even with unpolished wafers. Reducing processing steps.



▶ UV IMAGING

DIRECT UV IMAGING

- ▶ Corona Discharge detection, Power Grid health monitoring.
- ▶ Differentiating between 'white' products
- ▶ Dentistry, Enamel, Porcelain and Resin
- ▶ Non-Fluorescing Security Features, UV dead Ink.



**Thank you for
your attention!**

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