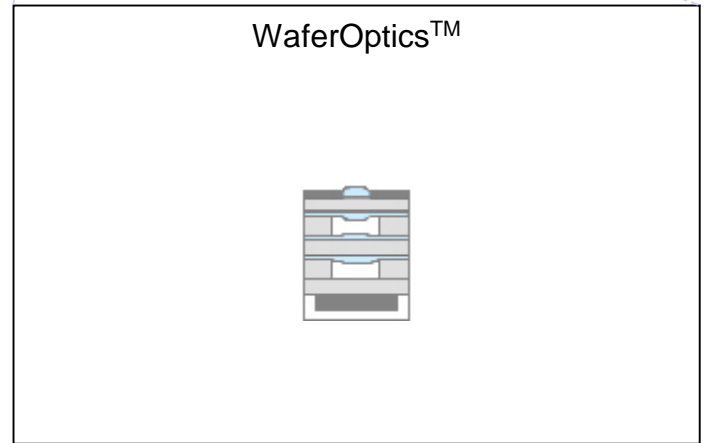
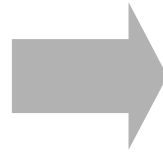
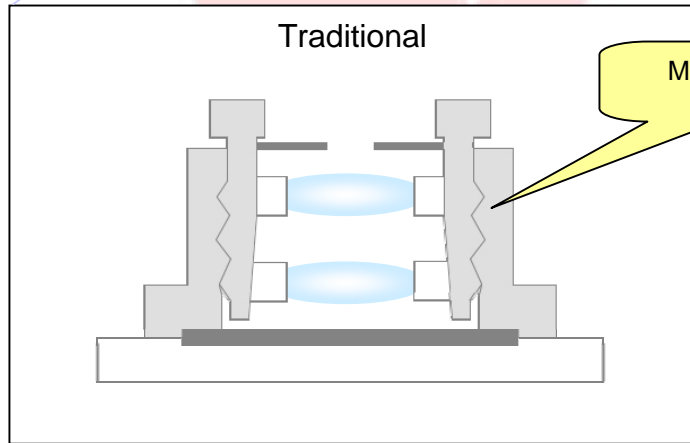
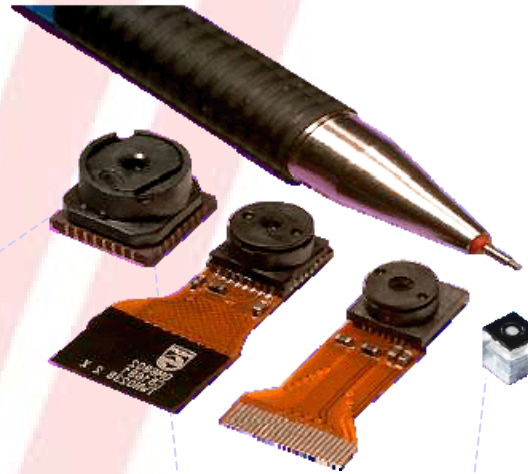




## Demonstrator 8: Anteryon Minicamera





# High volume markets new and existing applications

## Light receiving applications

Navigation



Gaming



Automotive



Mobile phones



Notebook & webcam



Medical endoscope



Security & surveillance



## Light transmitting applications

Laser pointer



3D displays



Barcode scanning



Laser mouse



Pico beamer



Laser leveling

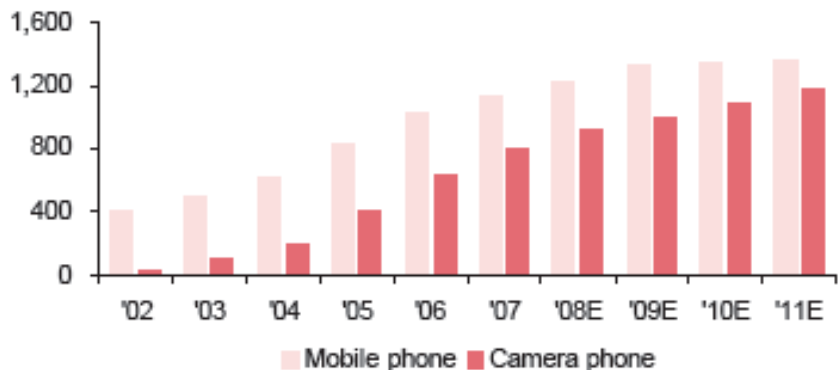


Telecom optical switching

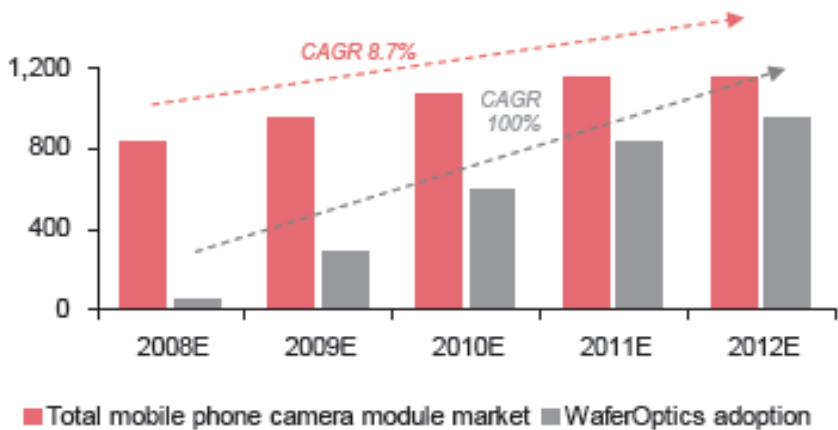


# Mobile Phones market leading

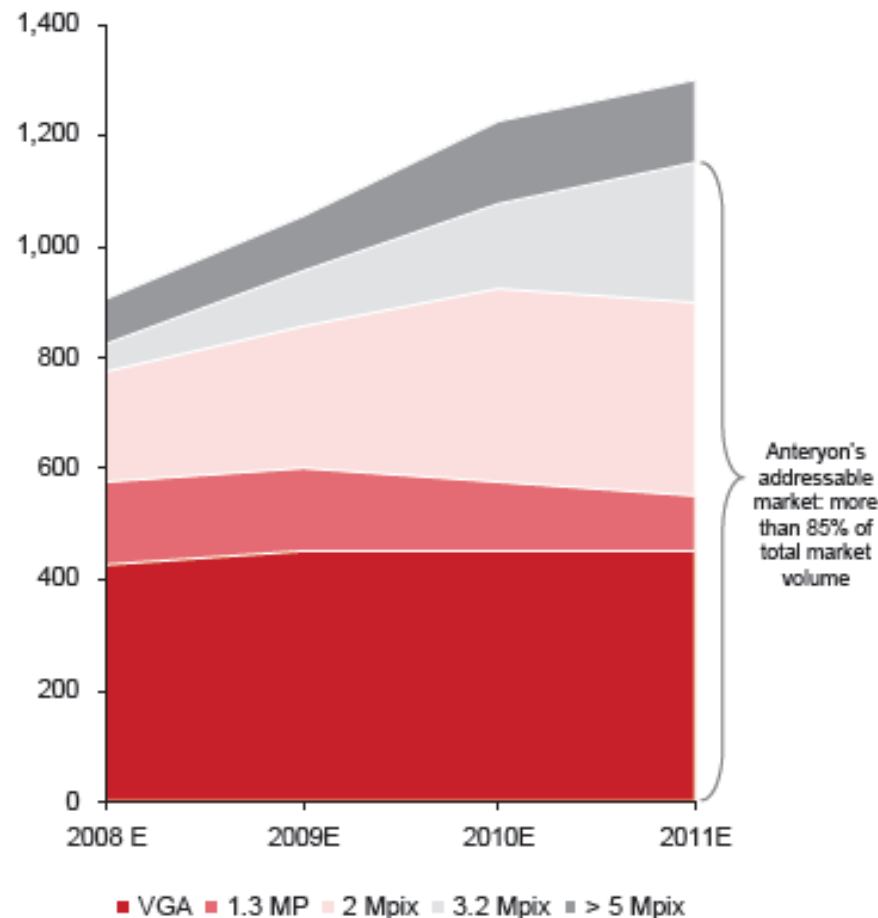
Projected mobile phone market (million units)



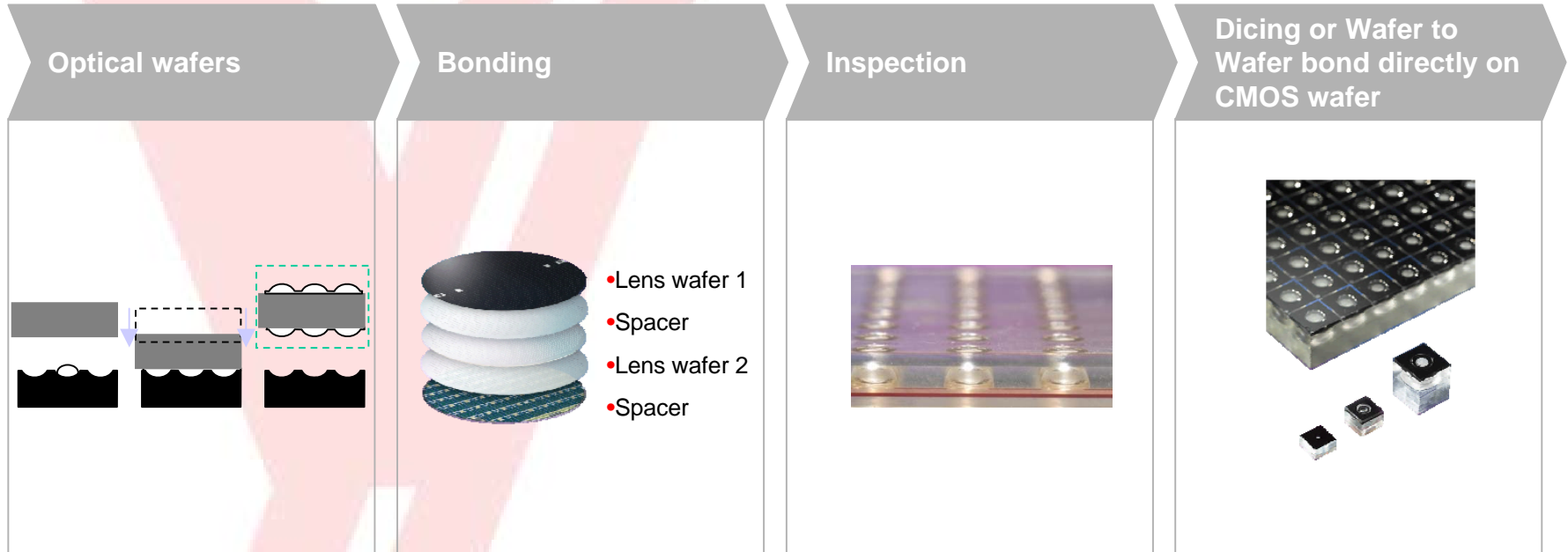
Projected adoption WaferOptics technology in mobile phone camera module market<sup>1)</sup> (million units)



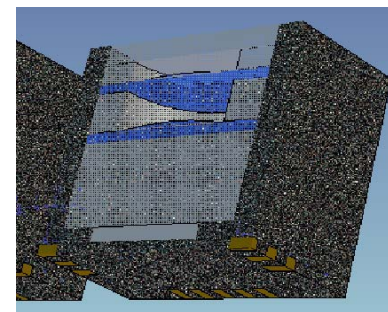
Projected mobile phone camera module market size (million lens stacks)



# The concept of WaferOptics™ production, the answer to the trends mentioned before



# Packaging is the next Challenge: ILS Encapsulation



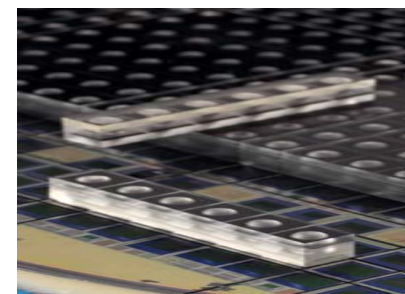
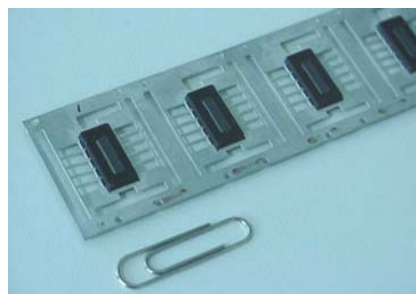
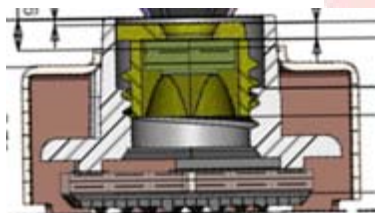
**Classical Camera Lens and Module assembly**



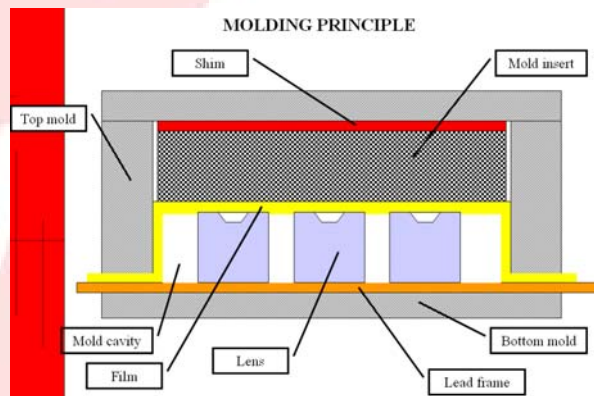
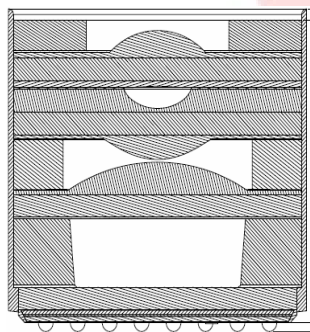
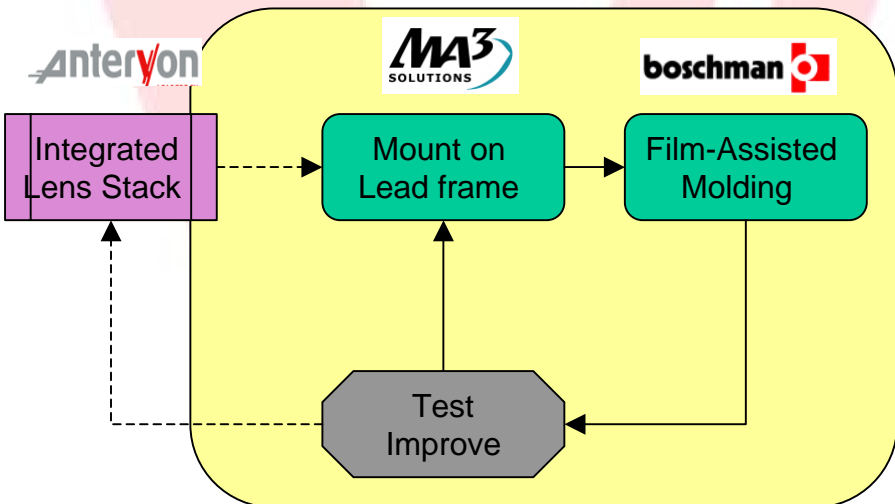
**Overmolded Integrated lens stack on lead frame**



**Wafer based overmolding**



## Process flow



## Developed technologies

**Micron level Position Accuracy**

**Precision Assembly**

**Preserve specs/after encapsulation!**

**Film Assisted Molding technology**

**Molding Compound materials**

**Clamping mechanisms/tools**

**Optical integrity test through:**

**Focus length (EFL, BFL)**

**MTF function**

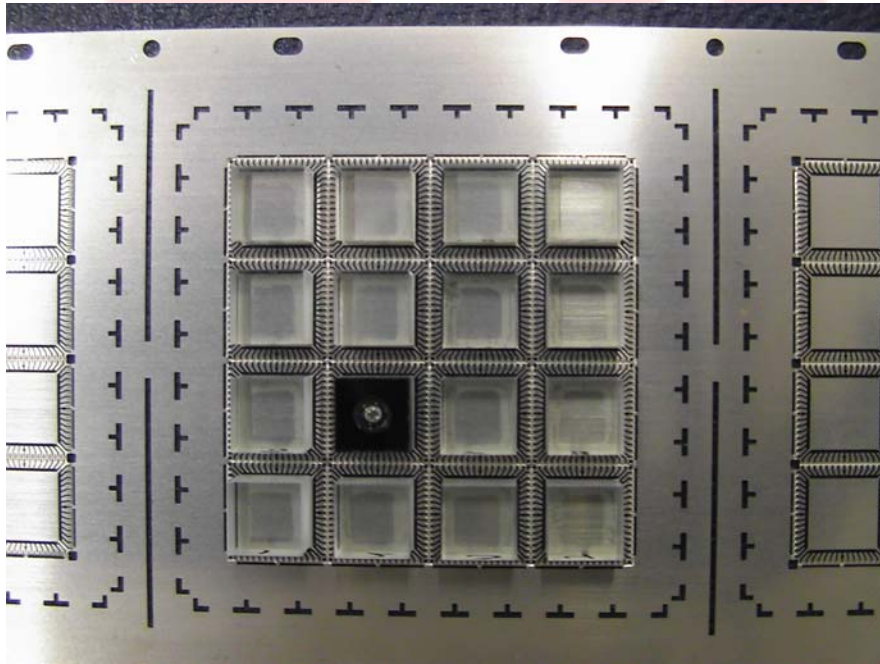
**Visual Quality top lens surface and within ILS**

**Packaging integrity:**

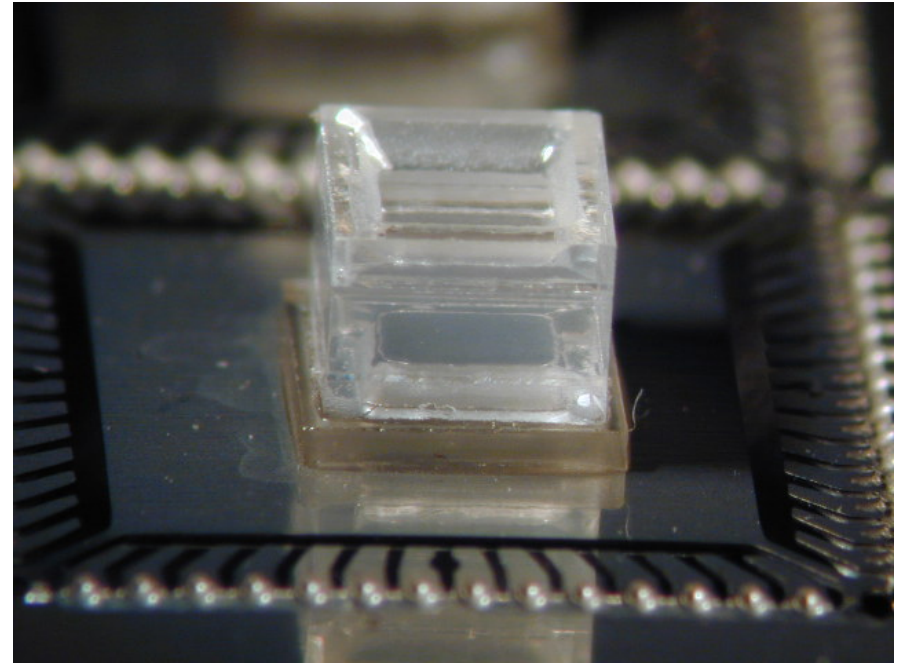
**Delamination/cracks**

**Adhesive materials**

# Interconnection and assembly



First design (2006) on LF



Current size on LF

# Thermomechanical Development Process:

