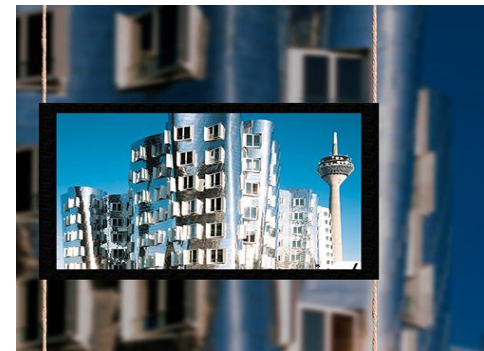


# PHILIPS

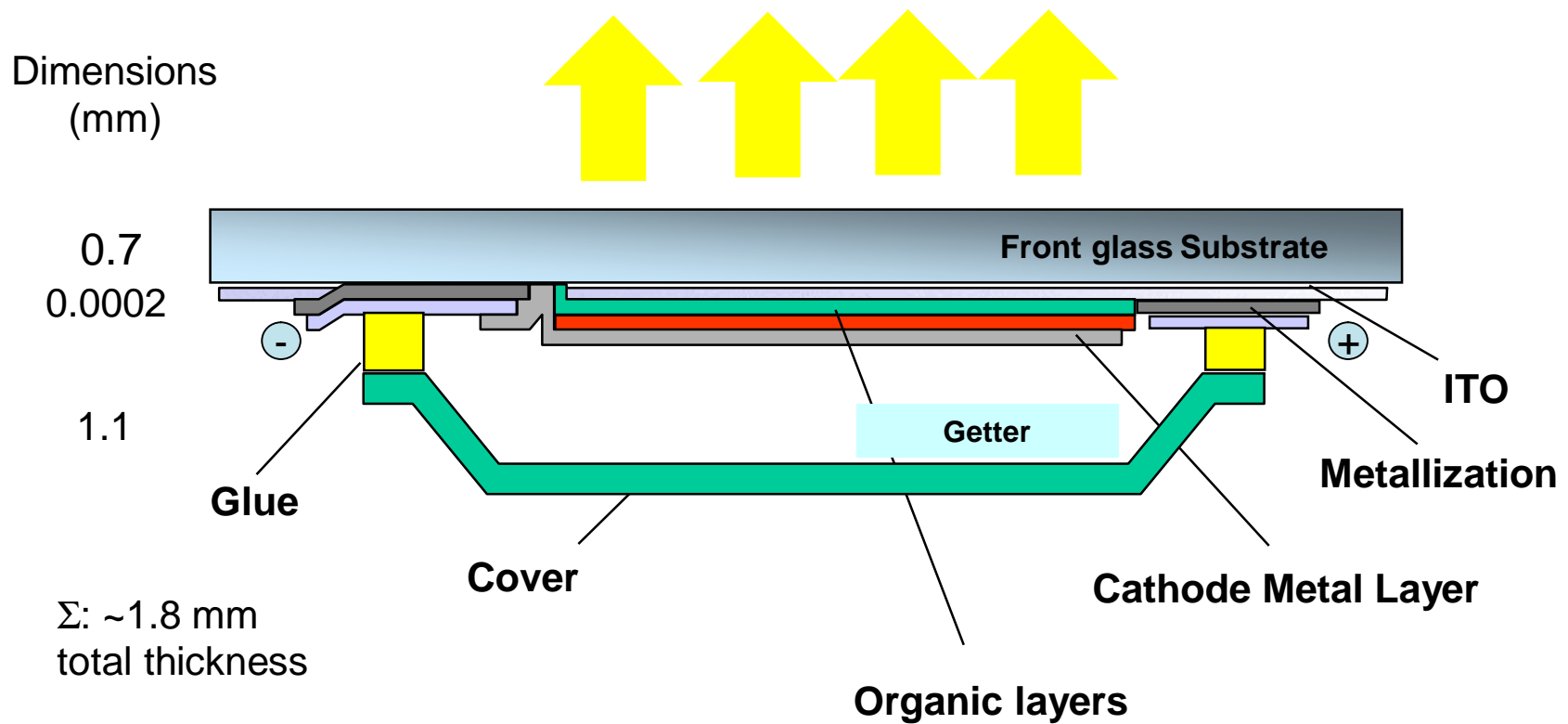
## Lumiblade

-Philips OLED technology-

Philips Lighting  
Business Center OLED Lighting  
Aachen/Germany



# Working principle



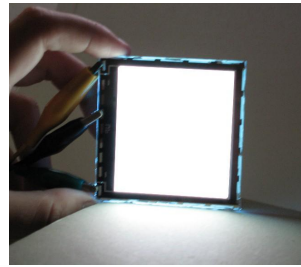
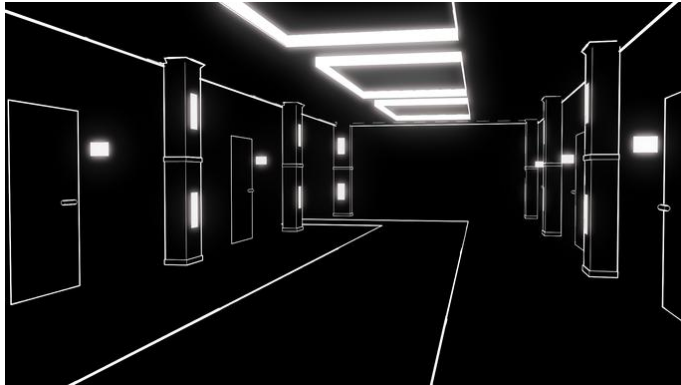
# OLEDs are flat light



Unlike all other lightsources, OLEDs are flat and directly emit light over the complete surface. The light effect is large area, homogenous light.



# Feature: Energy Efficiency



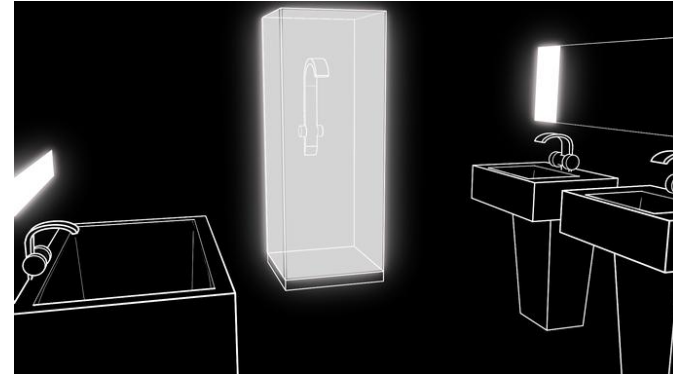
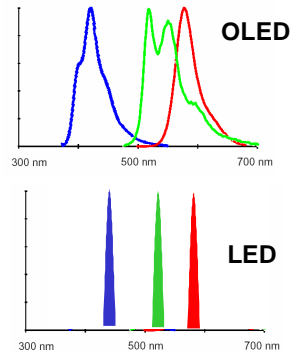
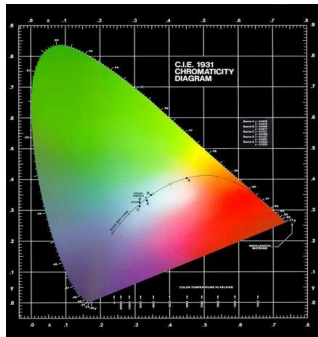
- Target 2008: 10 lum/W @1000cd/m<sup>2</sup> in white
- Efficiency is expected to double every 2-3 years
- Practical efficiency limit @140 lum/W
- In combination with properties like thin /little heat dissipation / good colour rendering, OLEDs will become an attractive alternative to fluorescent lighting

Today:

- R/G/B materials differently efficient
- Blue least efficient -> limited white efficiencies

OLED is a potentially very energy efficient lightsource

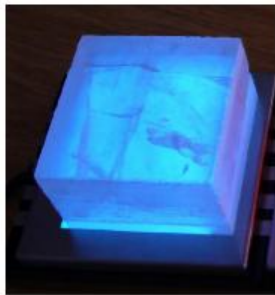
# Feature: Colour tunability



- Target 2008: monochromes & different shades of white
- Material spectra generally wider and more flat than inorganic LEDs
- Generally all colours doable
- First colour tunable samples shown in lab
- Stepwise approach: duochrome variable

OLEDs will stepwise become colour tunable (3-5 years from now)

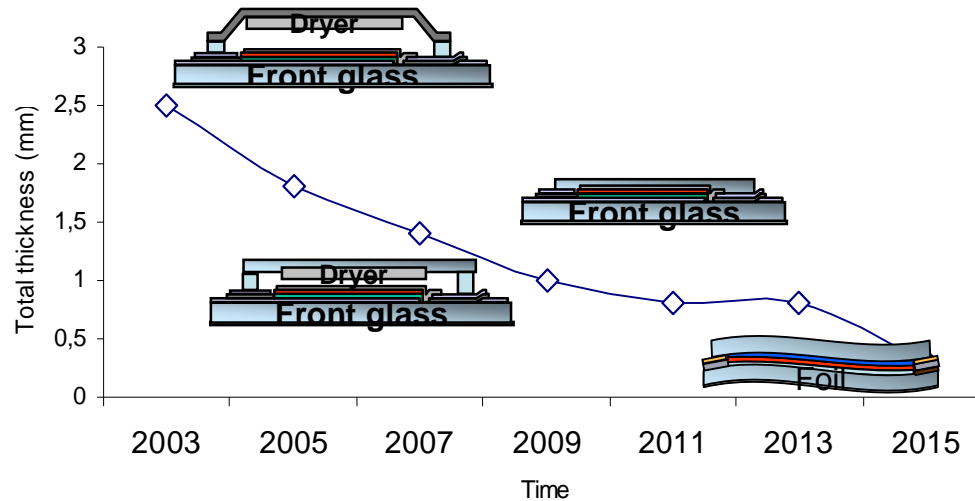
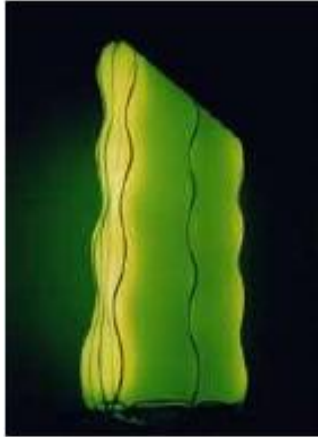
# Feature: Transparency



- Today: OLEDs look like a mirror in the off state (Aluminium cathode)
- In the future, OLEDs will become transparent in the off-state
- OLEDs can be integrated in glass as large area lightsource or partial illumination/information

OLEDs will be transparent in the off-state (3-5 years from now)

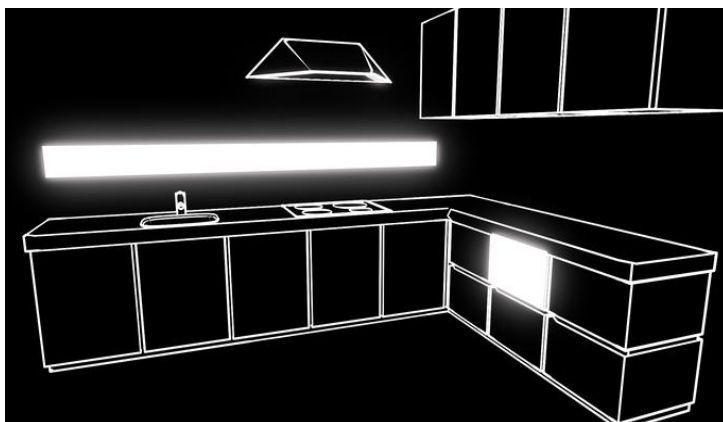
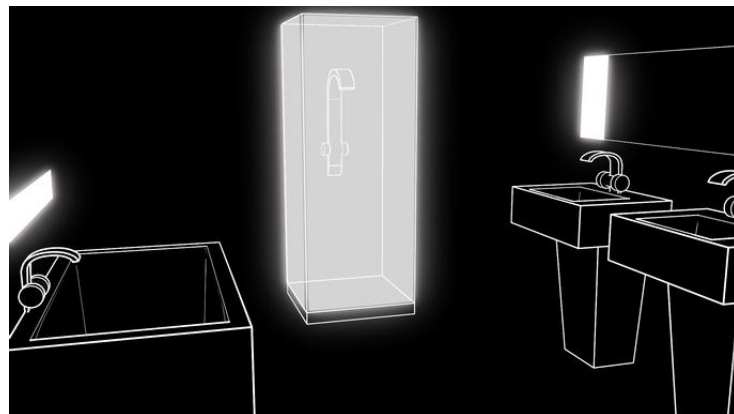
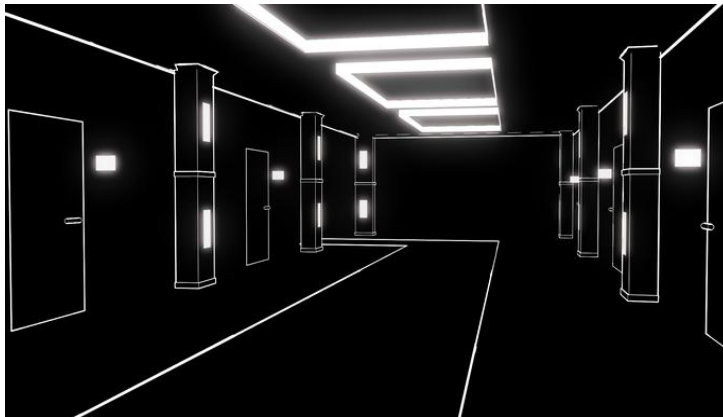
# Feature: Flexibility



- Today, we process on rigid glass
- Glass is necessary due to its tightness (organic materials are very sensitive to oxygen/water)
- Next step is thinfilm encapsulation, will decrease device thickness by 50%
- In the future, OLEDs will be manufactured on bendable plastic substrates
- First samples shown in the lab, but sound R&D needed to industrialise the process

OLEDs will be flexible (3D) (5-8 years from now)

# Applications





... for more information, please contact:  
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