PHILIPS

Lumiblade
-Philips OLED technology-

Philips Lighting
Business Center OLED Lighting
Aachen/Germany
Working principle

Dimensions (mm)

0.7
0.0002
1.1
Σ: ~1.8 mm total thickness
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/m² 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 it's 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:
info.lumiblade@philips.com