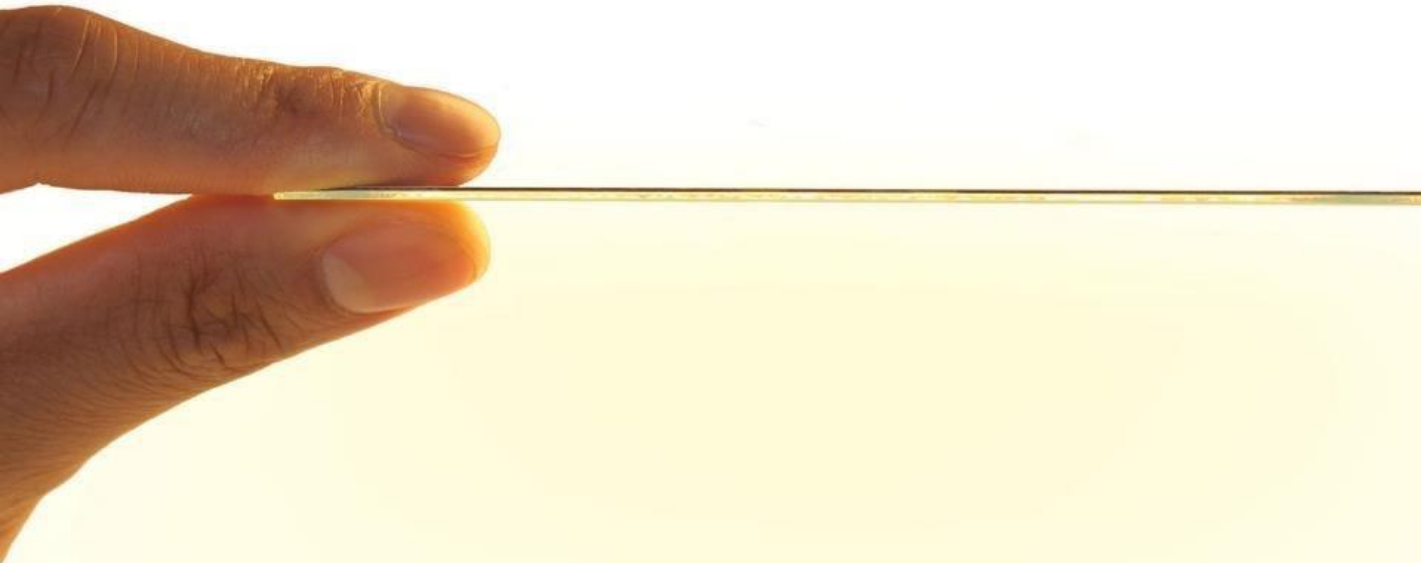


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## OLED Luminaire Design Challenges



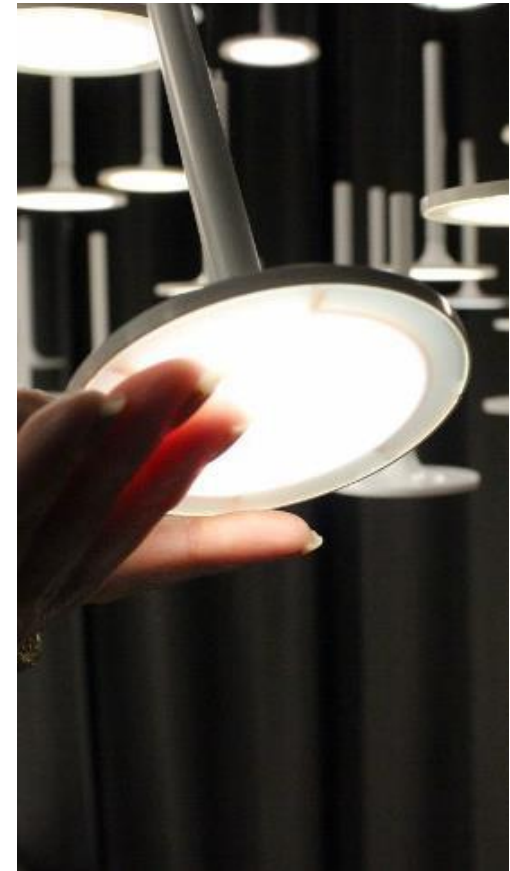
**OTI Lumionics**

# OLED is Still a Niche Technology in Lighting

Today OLED is limited to a few high-end art installations



OLED installations by Blackbody



# Limited Selection of OLED Luminaires

Fewer than 5 consumer OLED products in the USA

There have been many concepts, but few actual products



\$299



\$199



\$299

 **AcuityBrands™**

**aere**LIGHT  
(a product of OTI Lumionics)

The only OLED lighting product on **amazon.com**



# Why So Few Luminaires on the Market?

Unique challenges working with OLED as a light source



## 1. High cost for OLED panel

High \$/klm limits applications

Products need to be design driven

## 2. Interconnects and mounting

Current interconnects limit design

No simple solution to mount panel

## 3. Drivers and control system

Unique drive characteristics of OLED

Should we use same controls as LED?

# OLED is Price Competitive for Mid-market

Similar price to design driven LED products



aereLIGHT

\$299

Solid aluminum



Pablo®

\$299

Solid hardwood



AliExpress

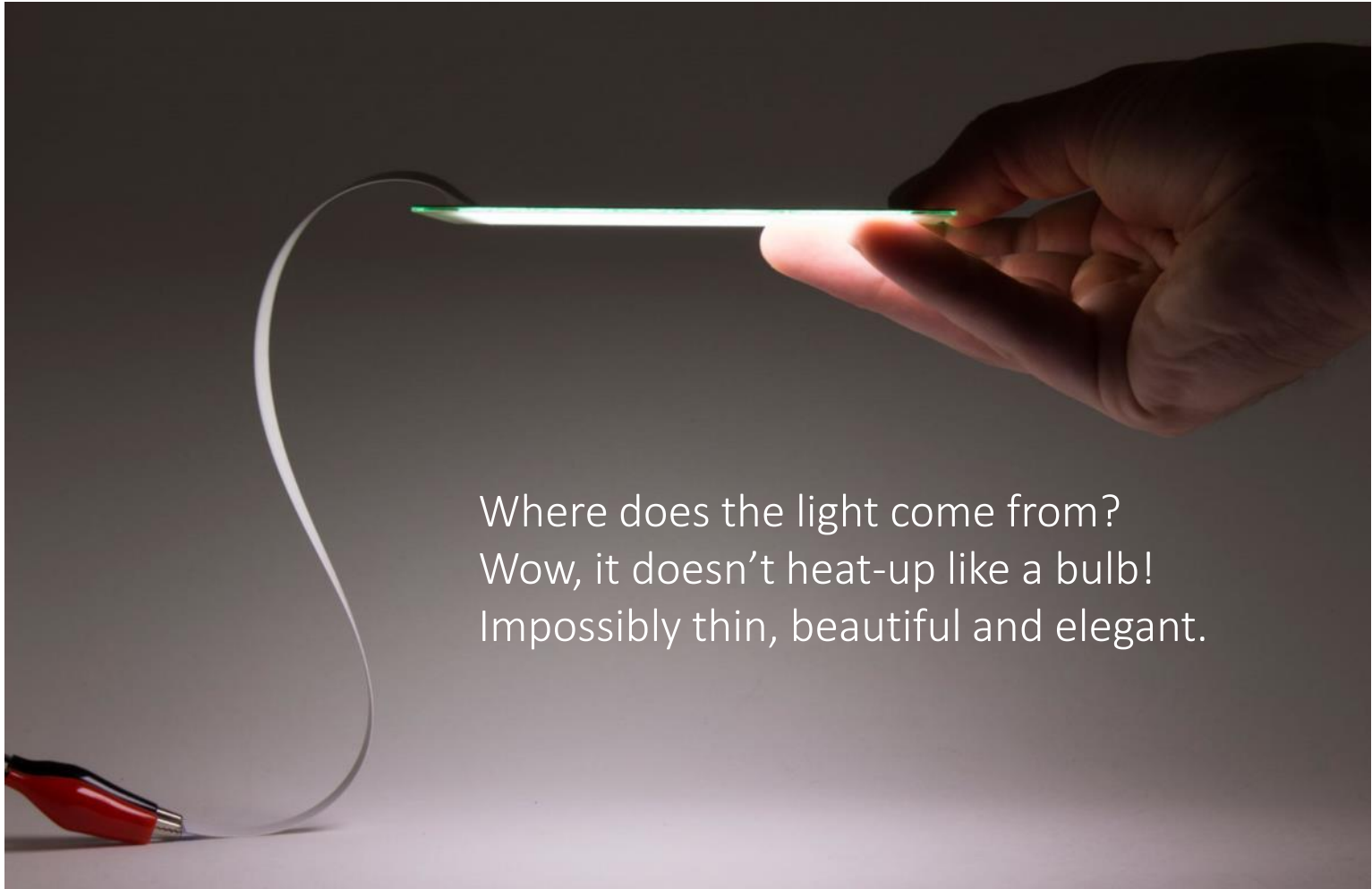
\$24.95

Cheap plastic

Do consumers really care about premium materials and build quality?

# OLED is a Very Magical Light Source

At panel level consumers are amazed by OLED



Where does the light come from?  
Wow, it doesn't heat-up like a bulb!  
Impossibly thin, beautiful and elegant.

# But... In Products Most of the Magic is Lost

The users experience of OLED is no longer unique



Thick mounting

Chalina OLED (\$299)

**AcuityBrands**



Edge lit LED panel (\$3 each)

**COOLIGHT** **NOT OLED**  
Lighting your life This is not OLED!

To consumer the OLED experience is the same as cheap edge lit LED panel from China, but at 100× the cost!

# Don't Hide the OLED Panel

Make it central to the product design



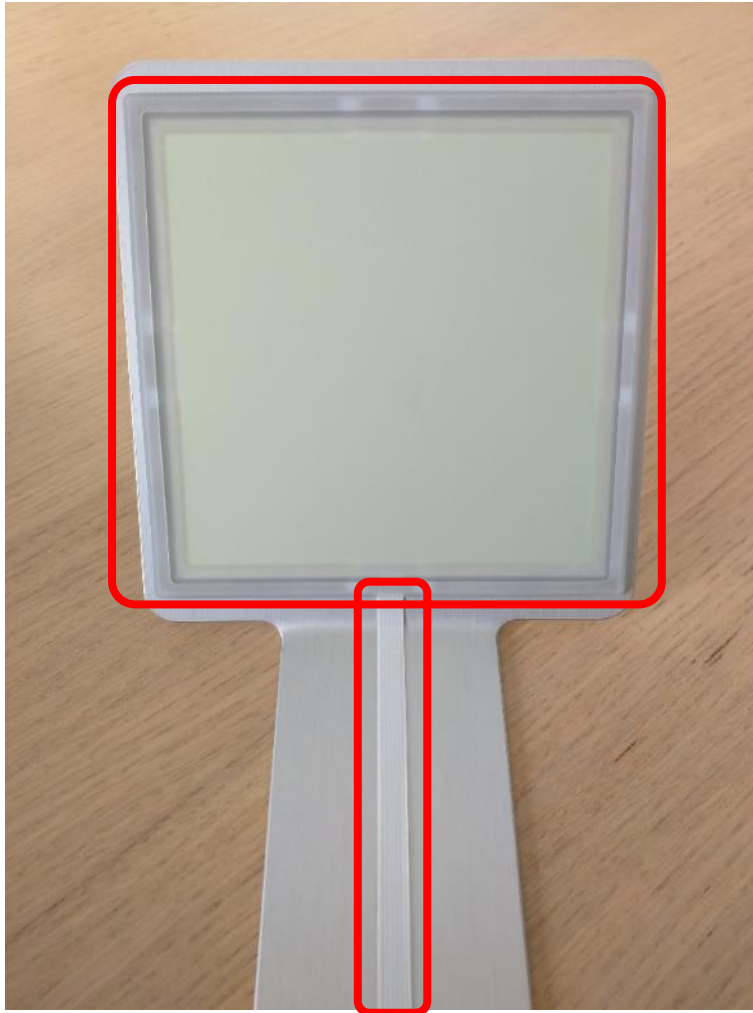
# Don't Hide the OLED Panel

Make it central to the product design



# Challenges to Leaving the Panel Exposed

Clever design is required



1. Mounting the panel  
Mechanical support without enclosure
2. Running power wires  
Match thin profile of OLED panel
3. Protecting the panel edge  
Glass edge is sharp and fragile

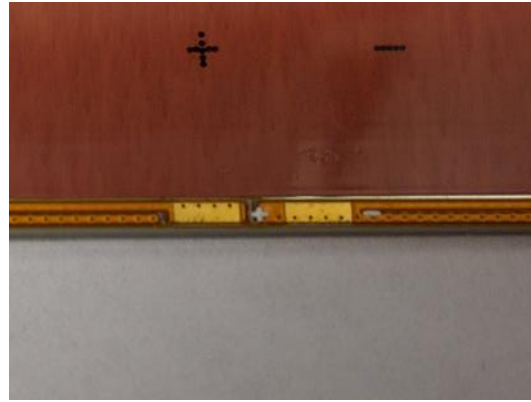


# Challenges with Existing Interconnects

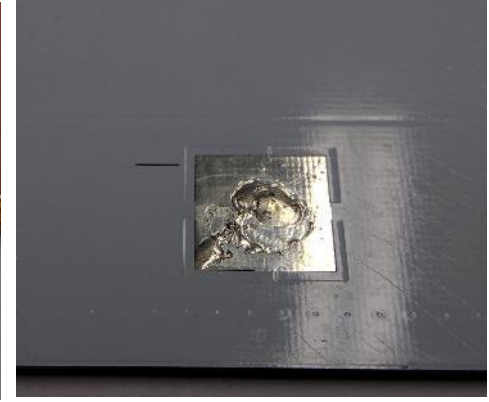
Each panel is different; limited design potential



Panel 1



Panel 2



Panel 3

1. Contacts are all different
2. Contacts are not customizable
3. Difficult for designers to work with

# Challenges with Drivers

Large variability in panels

1. Forward voltage

3 – 24 volts DC

2. Drive current

50 – 500 mA

3. PWM vs. AM

Dimming control

**No off the shelf solution**

(requires custom development)

**We design our own custom drivers**



aerelight A1 driver module

- PWM: 0 -100% dimming
- DC buck-boost converter
- Communication interface
- Wireless charging (optional)

# Force the User to Touch the Light

Make the power and dimming control part of the light



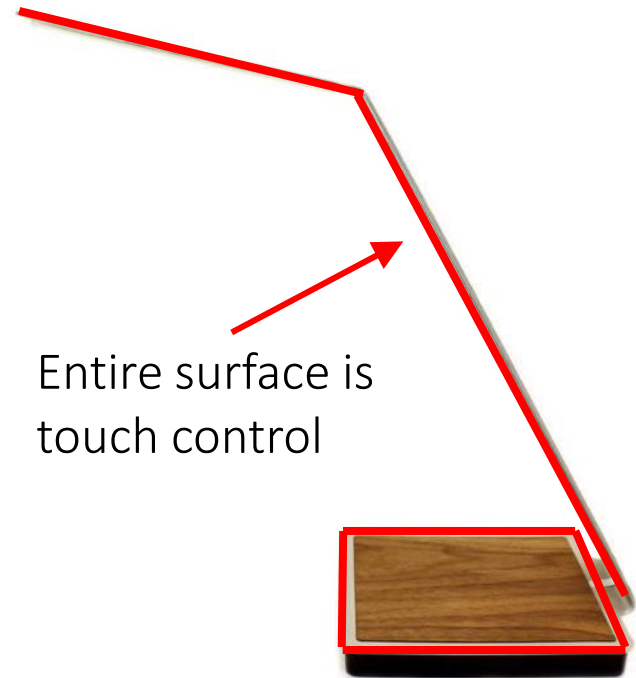
# Challenges in User Touch Interaction

No ready solution for touch beyond a small spot



Typical lighting touch control is a tiny spot!

(Simple off the shelf solution)



Entire surface is touch control

aereLIGHT

We had to design custom touch sensor electronics and firmware

# We Brought OLED to the Consumer Market

The World's first consumer-accessible OLED lighting product



Available for \$299 from:

[aerelight.com](http://aerelight.com) (International)  
[amazon.com](http://amazon.com) (USA)



aereLIGHT

# Key Take Away Message

We all have big challenges to overcome



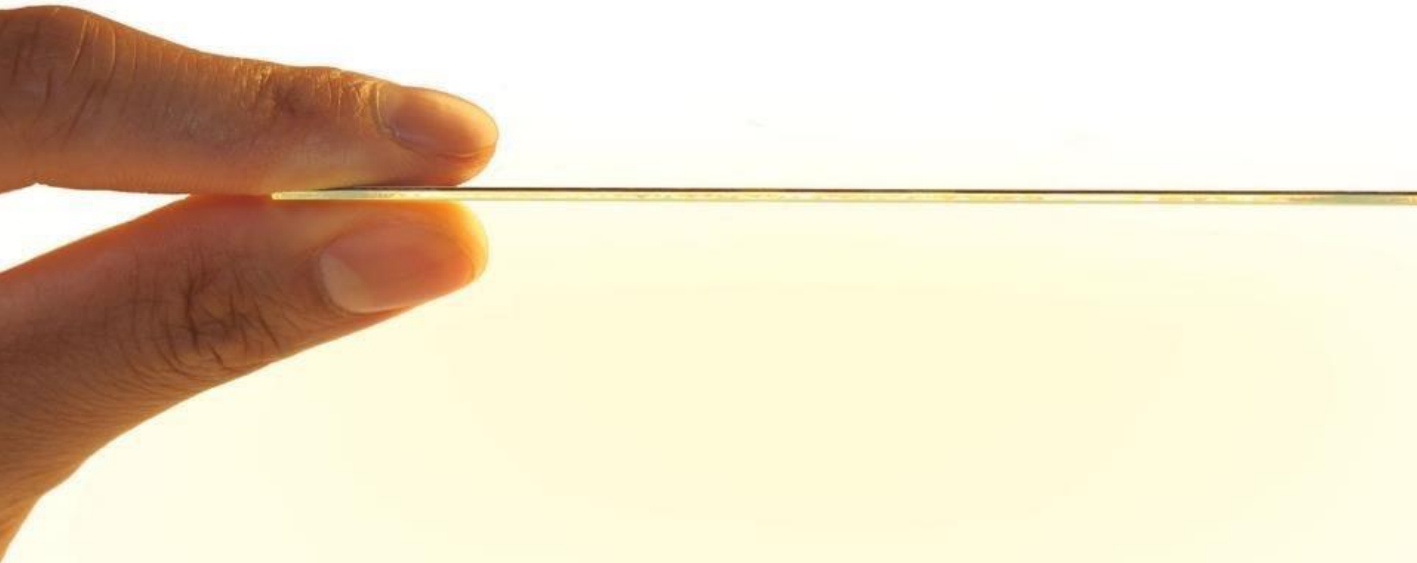
1. Cost and performance need to improve, but are already good enough for design driven products
2. We need more products, not concepts
3. Interconnects and mounting need more thought
4. Variability in panels requires unique driver design
5. No excuse for not having an OLED lamp in your own home or office today!

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**Thank you!**



**OTI Lumionics**