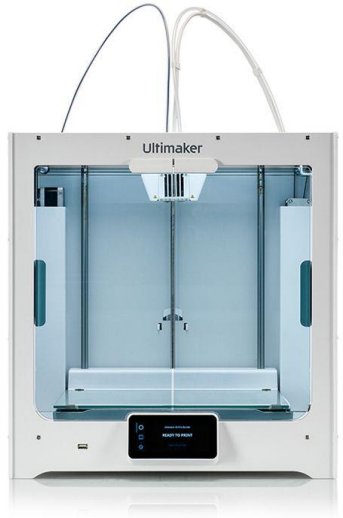
Commercializing New Tools and Technologies is Difficult and Fun!

Two most crucial keys to success…

Solve a meaningful problem that customers care about

Build excitement inside and outside your organization



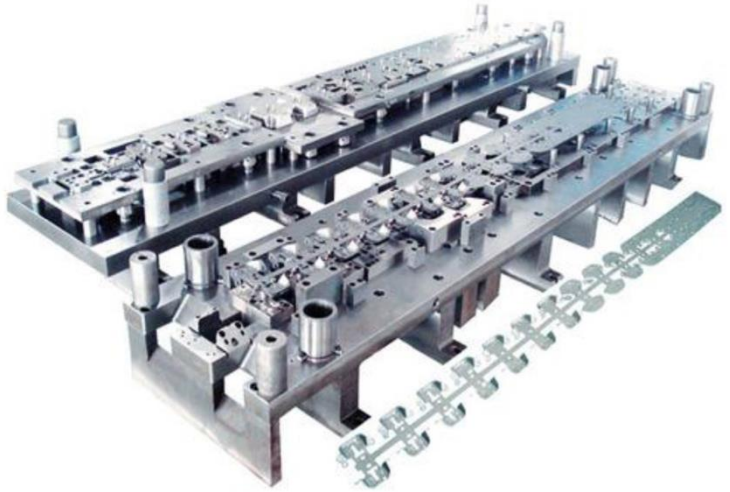
Credit: Ulitmaker

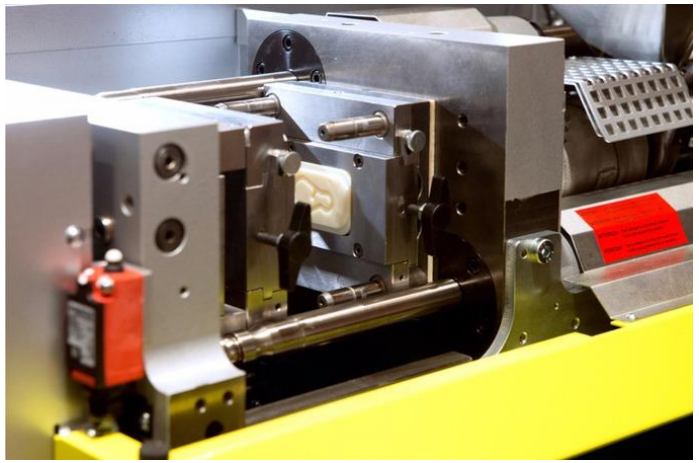
Product Development Challenges

Development timeframes

Innovation limited by standard manufacturing practices

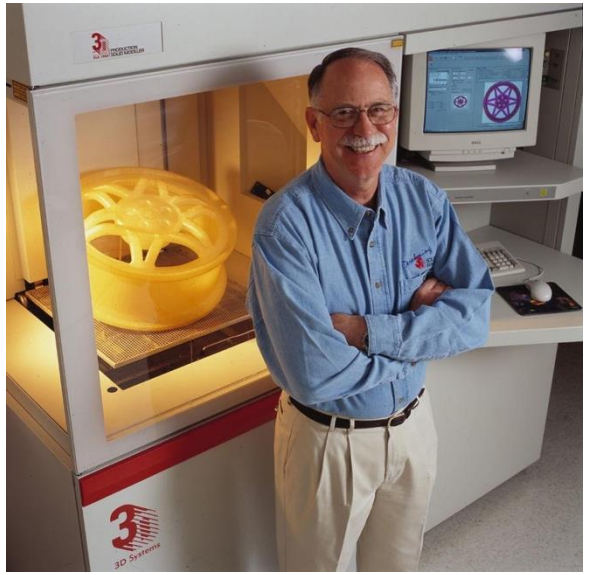
Modifications to existing products are not easy

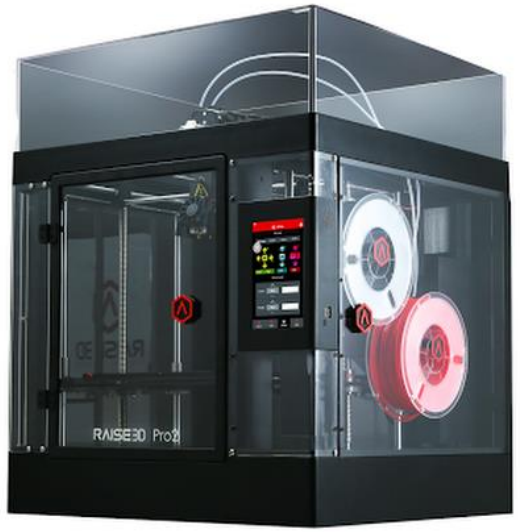




3D Printing Has Advanced Significantly

While prices have decreased & quality has improved





Credit: Raise3D

3D Printing Exploration

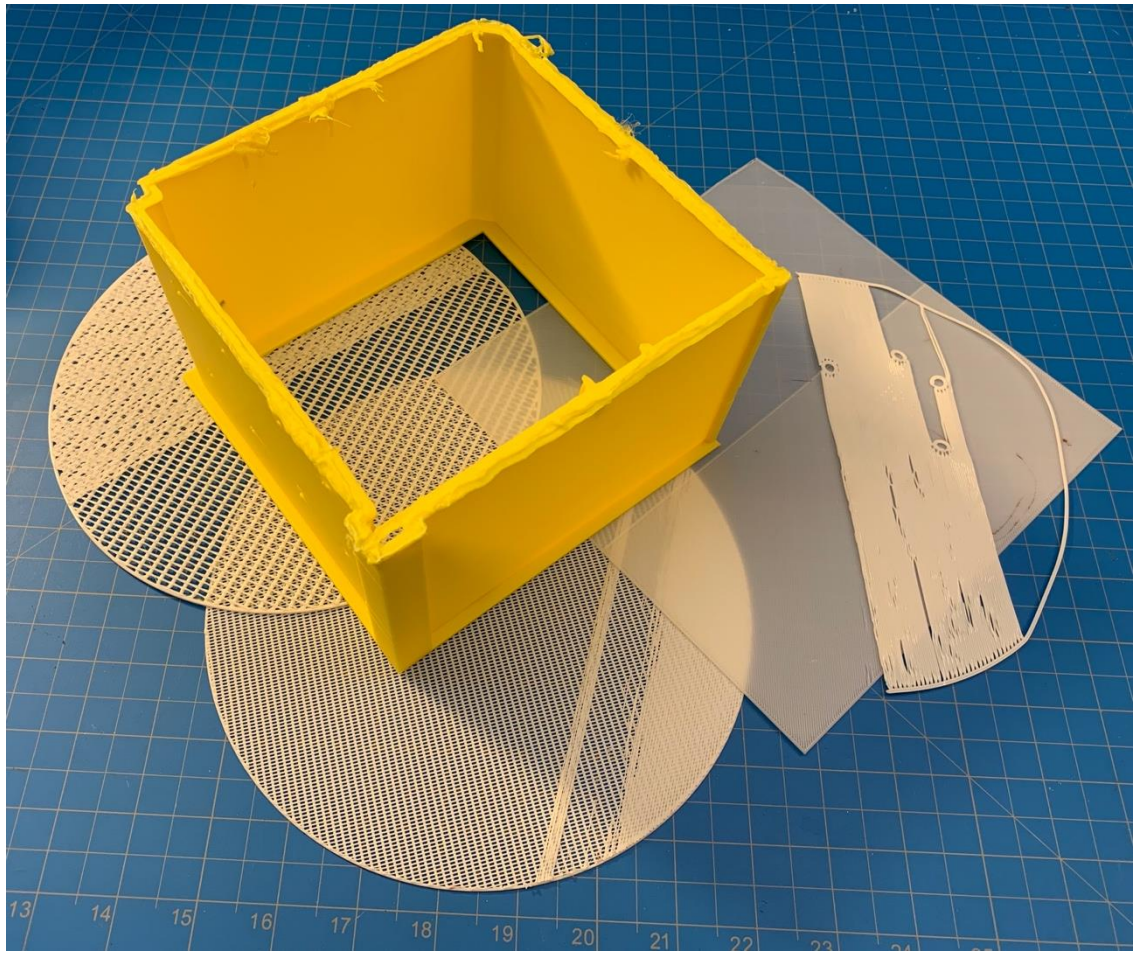
Time to Have Some Fun!

Release from manufacturing constraints allowed us to play with light!

We learned from every print

Failed prints inspired new concepts!

Daily iteration



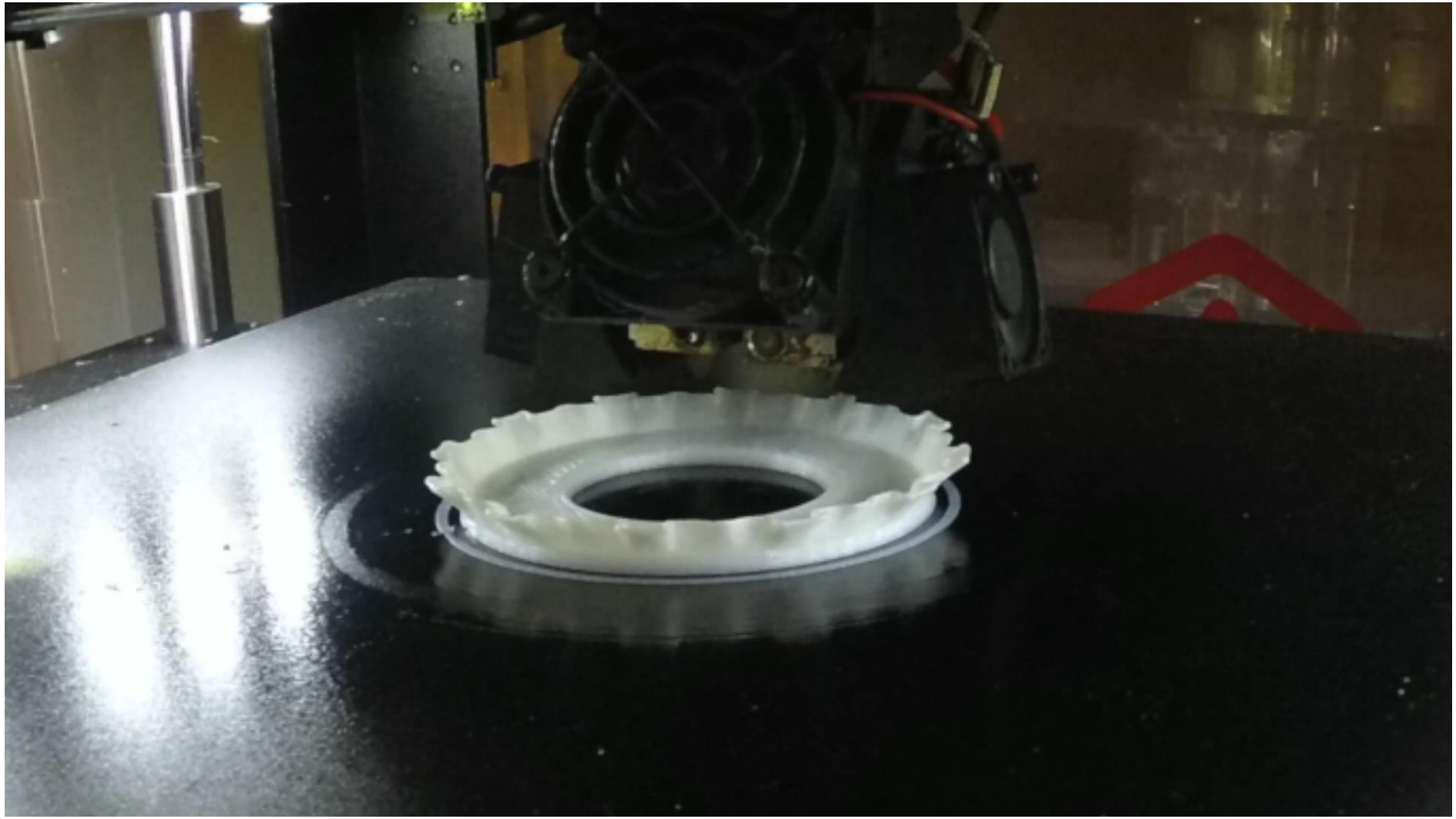
3D Printing and Lighting

What Works Well?

Lighting Diffusers with unique lighting textures and gradients

3D Printing and Lighting

Enables Unprecedented Innovation of Form



3D Printing and Lighting

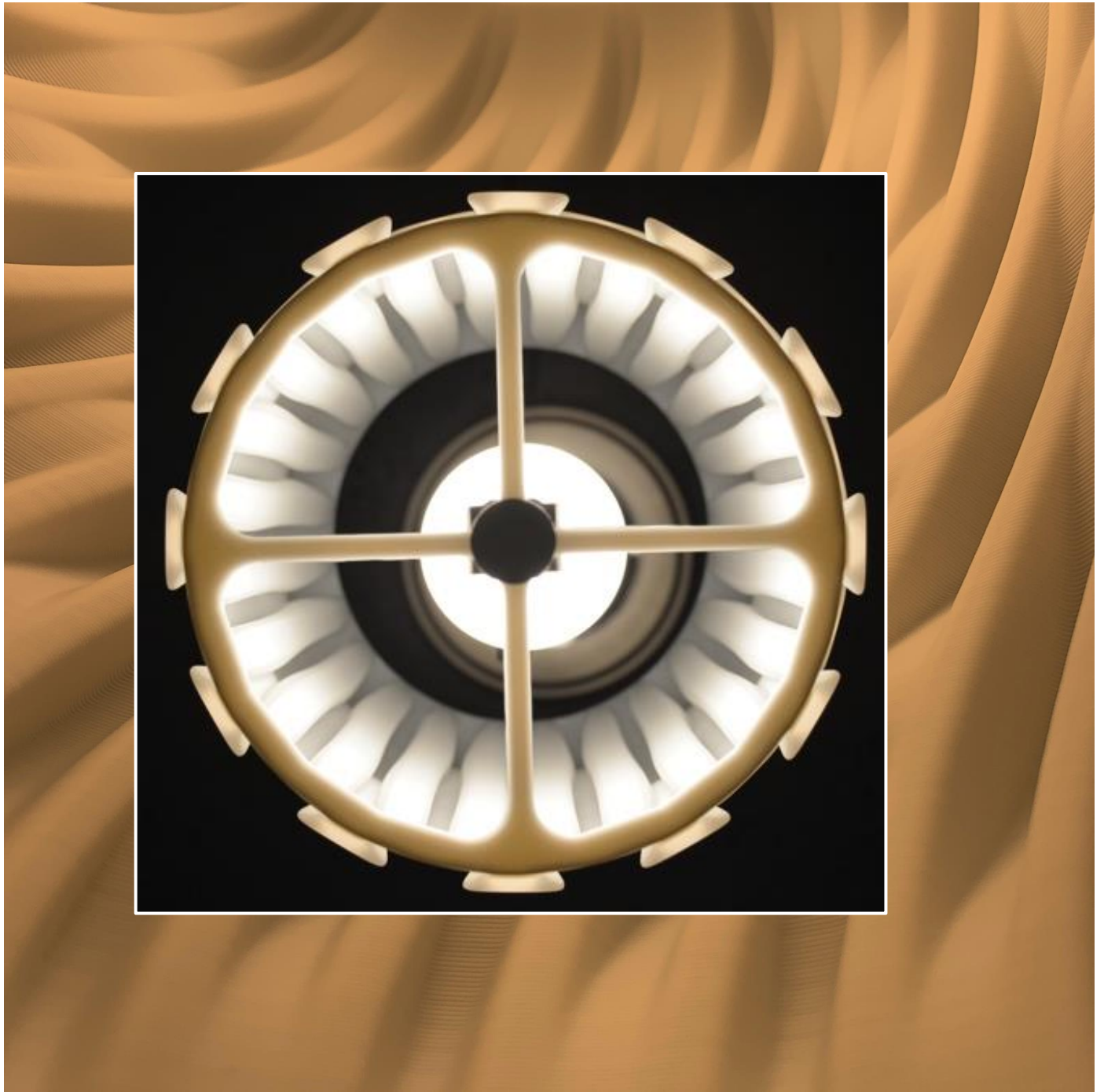
What Works Well?

Lighting Diffusers with unique lighting textures and gradients

Luminaire mechanical structure.

Mechanical design simplification – replace multiple plastic parts with one

Decorative elements and trim pieces



3D Printing and Lighting

What is a More Challenging…

Electrical Enclosures – It is possible, but materials with required flame ratings are just emerging.

Metal Parts – Close to viability, but price of equipment is prohibitive.

Four Key Takeaways

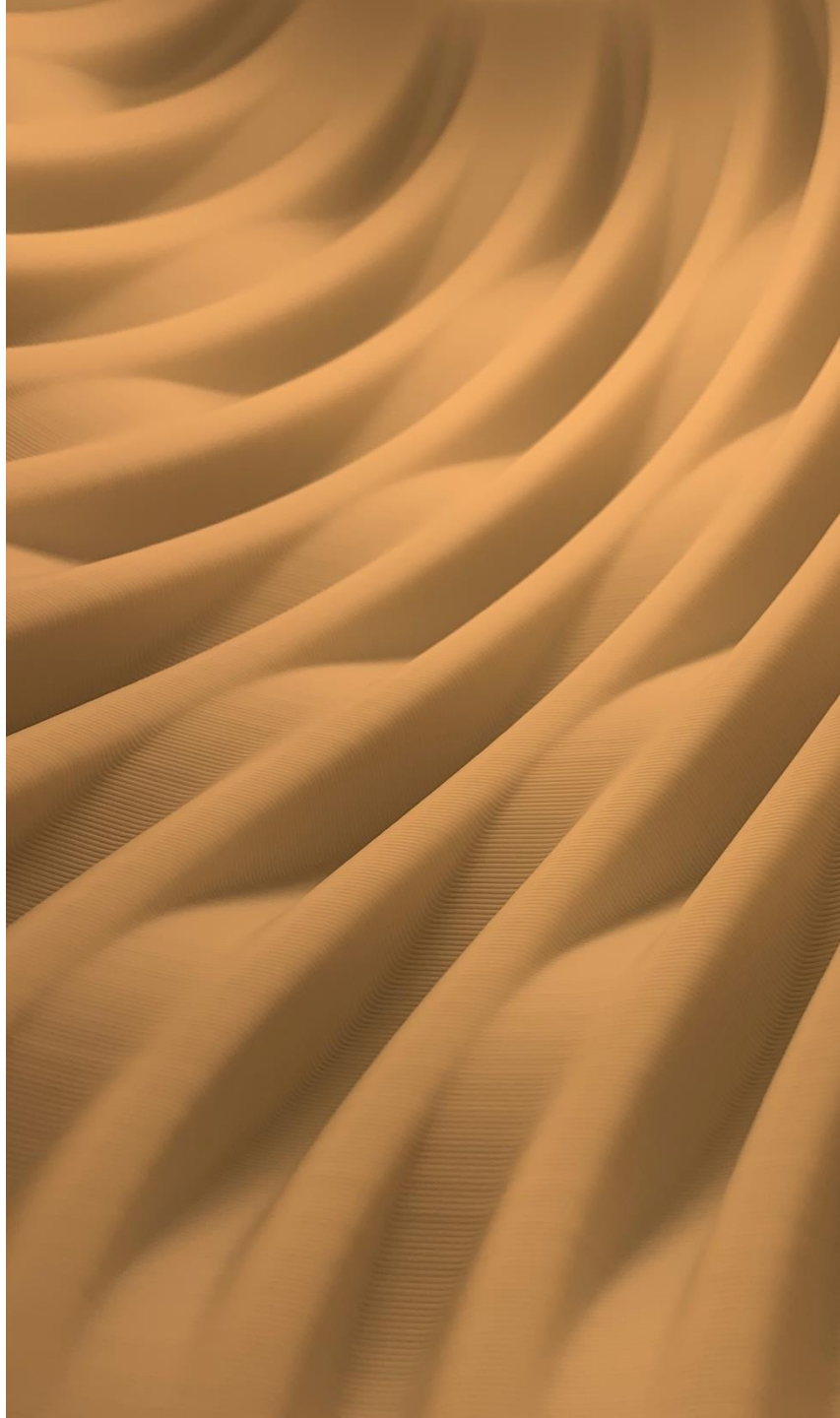
Additive manufacturing….

Is more than a prototyping tool - it **can be used for high quality production**

Speeds time to market for new products…

Enables **unique designs** not possible with standard processes

Customization can give lighting designers **unprecedented control of designs**



GUV

Lighting professionals have an unprecedented opportunity to reduce harmful pathogens and promote well-being

*Legal Statement

All references to “disinfection” are referring generally to the reduction of pathogenic bioburden and are not intended to refer to any specific definition of the term as may be used for other purposes by the U.S. Food and Drug Administration or the U.S. Environmental Protection Agency. The disinfection technology as incorporated in Acuity Brands products is not for use as or for medical devices.

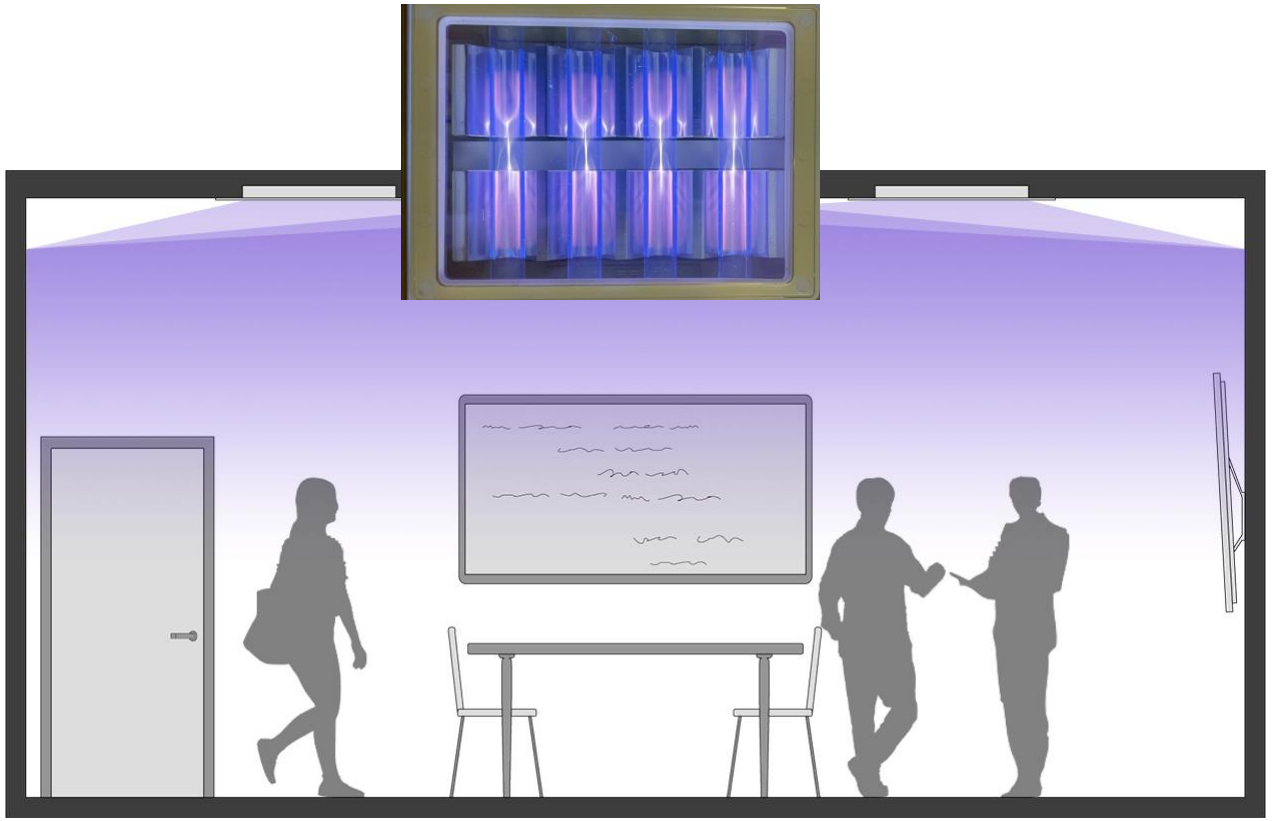
Big GUV Problems to Solve

Scaling from niche to mainstream

Balancing safety with pathogen reduction

Disinfection while people are present

Is Air and Surface Disinfection Possible in Occupied Spaces?



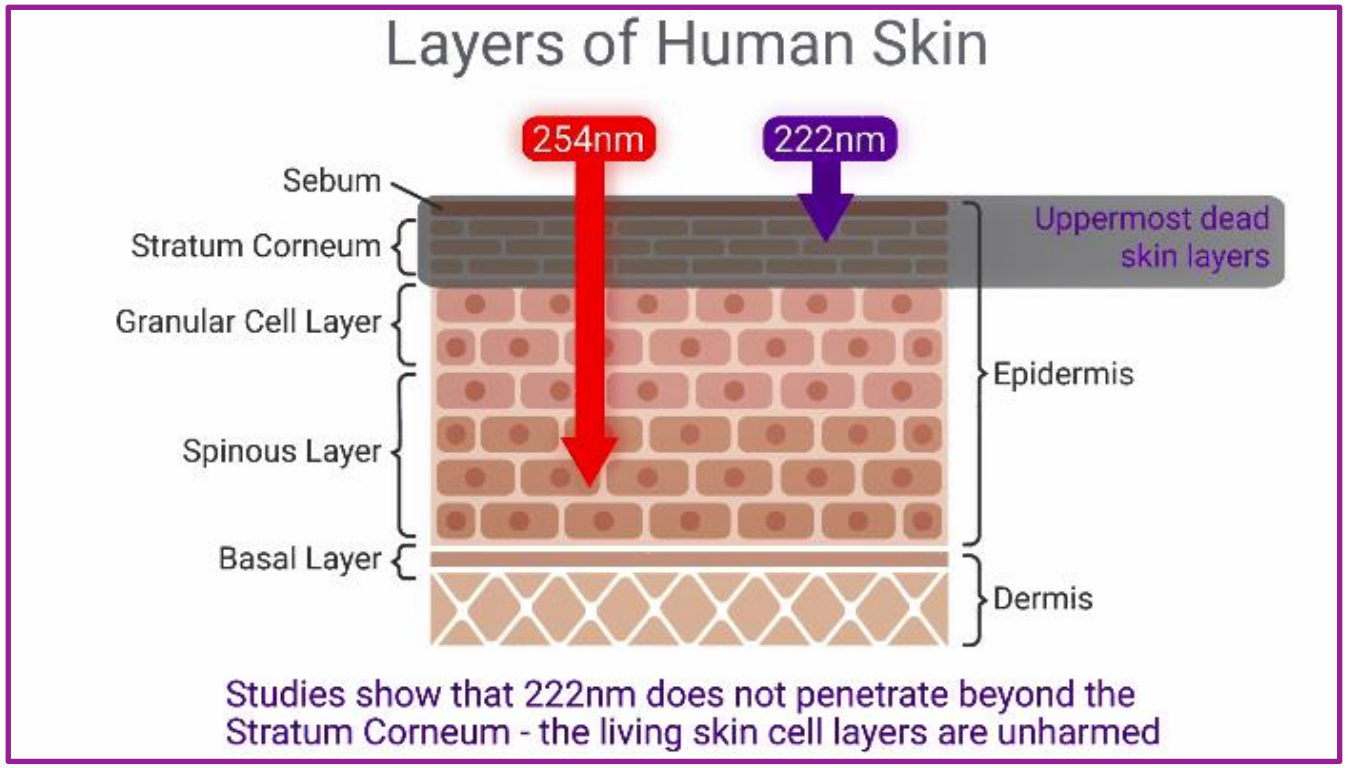
Possible with Filtered 222nm KrCl Excimer Technology from Ushio

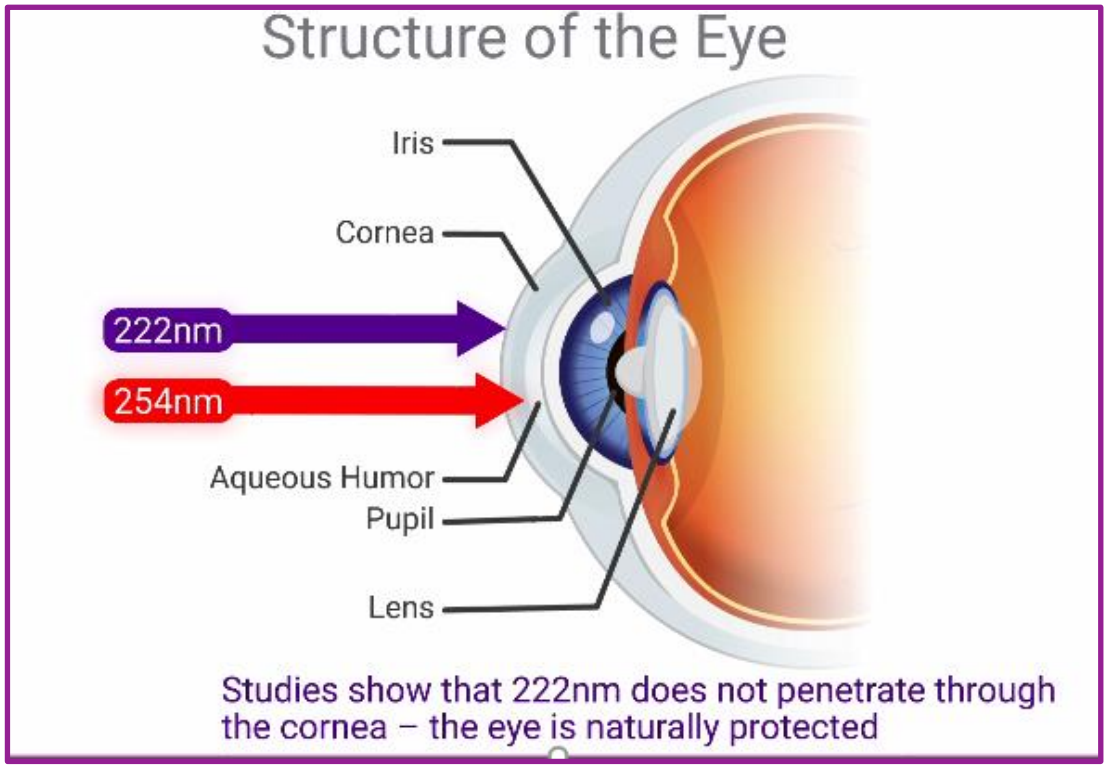
Dosing control technology enables it to meet safety guidelines for human occupancy (ACGIH)

Science and research based

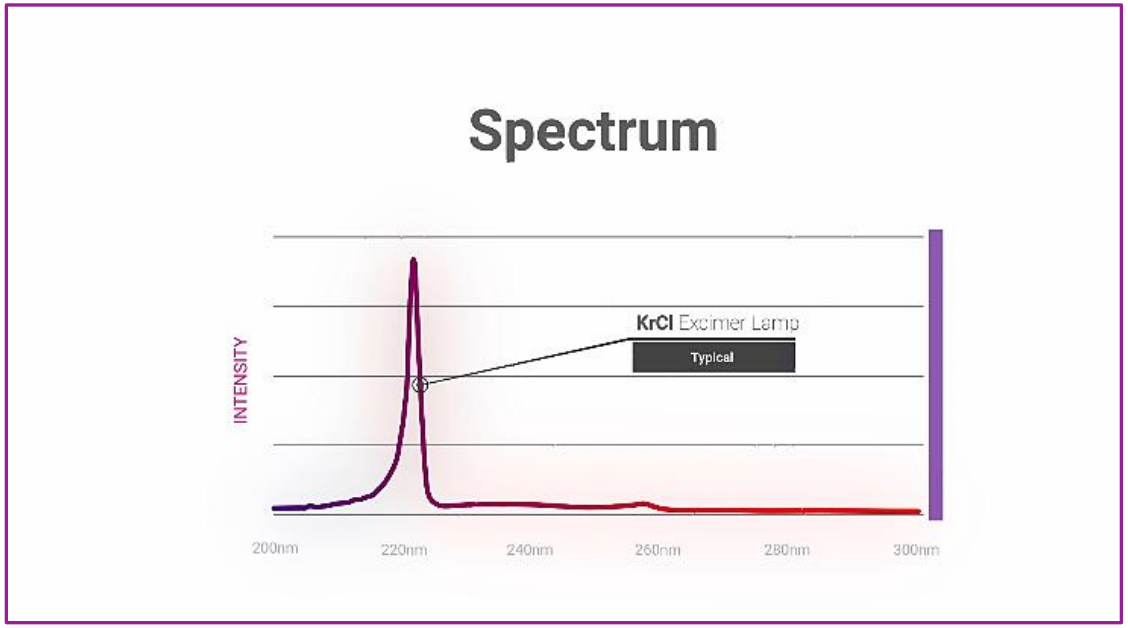
Working closely with UL

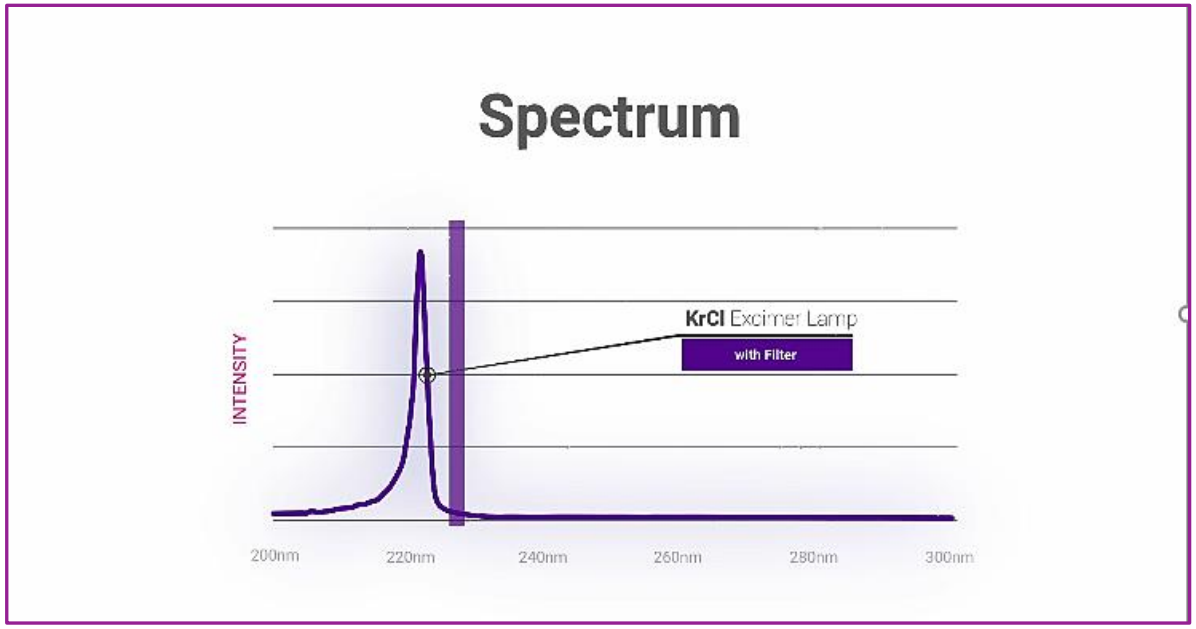
Filtered 222nm Compared to 254nm





Why Filtering is Important





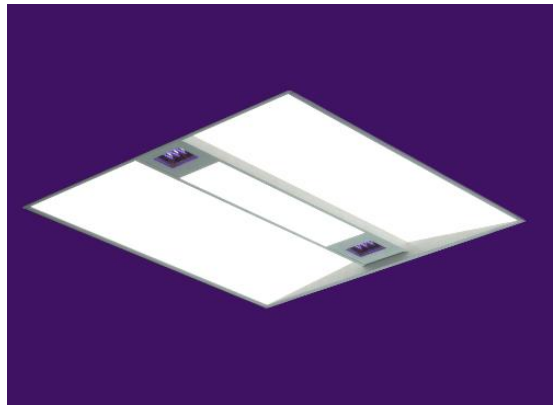
The Care222 UV light disinfection technology from Ushio utilizes an excimer lamp that employs a specially designed Short Pass Filter to remove harmful wavelengths resulting in a narrow-band wavelength centered at 222nm

Modular Design Enables Implementation in Many Form Factors

Standalone disinfection

Hybrid disinfection and white light

Combination of technologies in hybrid solutions makes disinfection much easier to scale



Key Takeaways for UV Technology

When applied properly, well designed products can reduce pathogens safely.

A conservative and science-based approach to product design and application is required

In-depth due diligence of potential suppliers and products is necessary

With training and education, lighting professionals are uniquely qualified to become a resource to help reduce harmful pathogens and promote well being