

Stop Fighting the Power



Improving the battery life of our devices remains one of the tech industry's biggest challenges, and the most inefficient draw on power comes from the display, more specifically, the backlight that illuminates most displays. On most devices the backlight is as powerful as a car headlight, and uses most of that energy fighting light sources it could be using. But there is another, much more efficient display light. It does, however, work differently than a typical transmissive backlit display.



Will it Work in Sunlight?



Backlit and OLED displays fight sunlight and lose. Backlights are used in transmissive LCDs, which is a technical way of saying they shoot light directly into your eyes. OLEDs are emissive meaning they emit their own light (unlike the liquid crystals in LCDs). Both backlit and OLED displays are very difficult to read in direct sunlight.

The only screens that don't fight the sun are ones with reflective displays. Displays that use reflective LCDs but are frontlit, like FLEx, can use sunlight or any ambient light in a room to illuminate the screen, and also have their own light for low-light conditions.

OVERVIEW

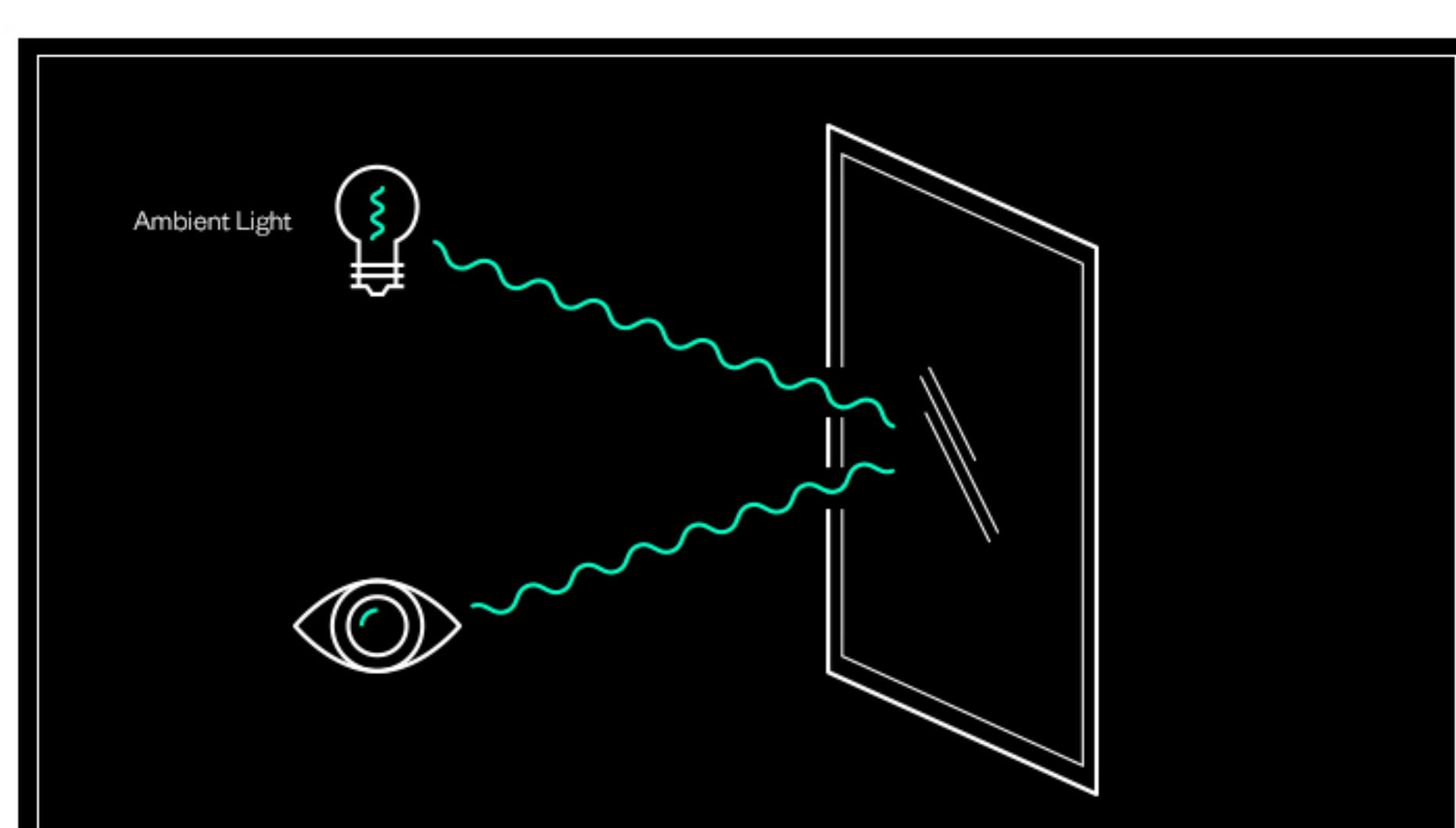
3 Types of Displays



Reflective

Can use any ambient light that's in front.

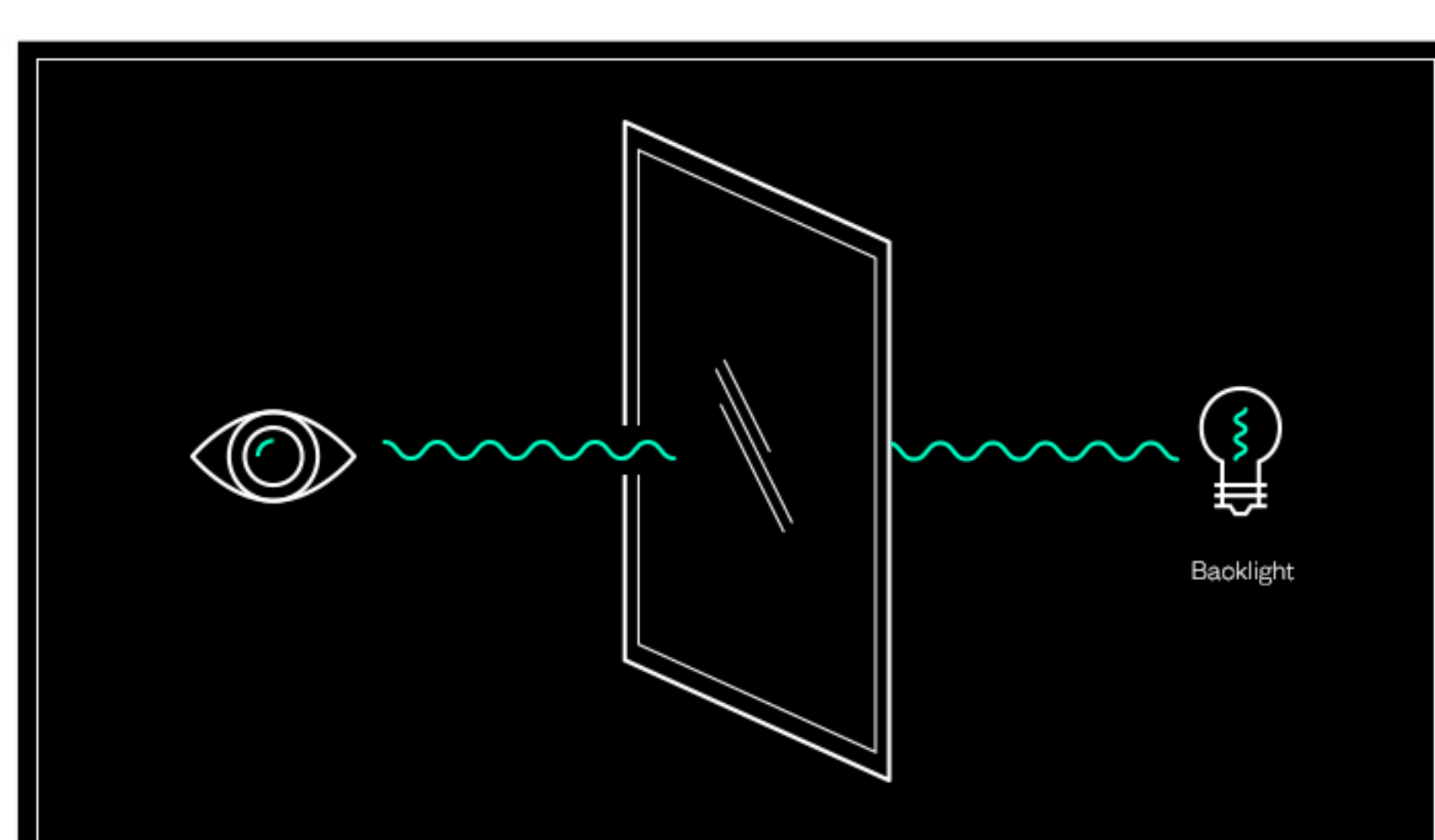
Fig. 1: Reflective Object



Transmissive

Light is beamed from behind the display into the viewers' eyes.

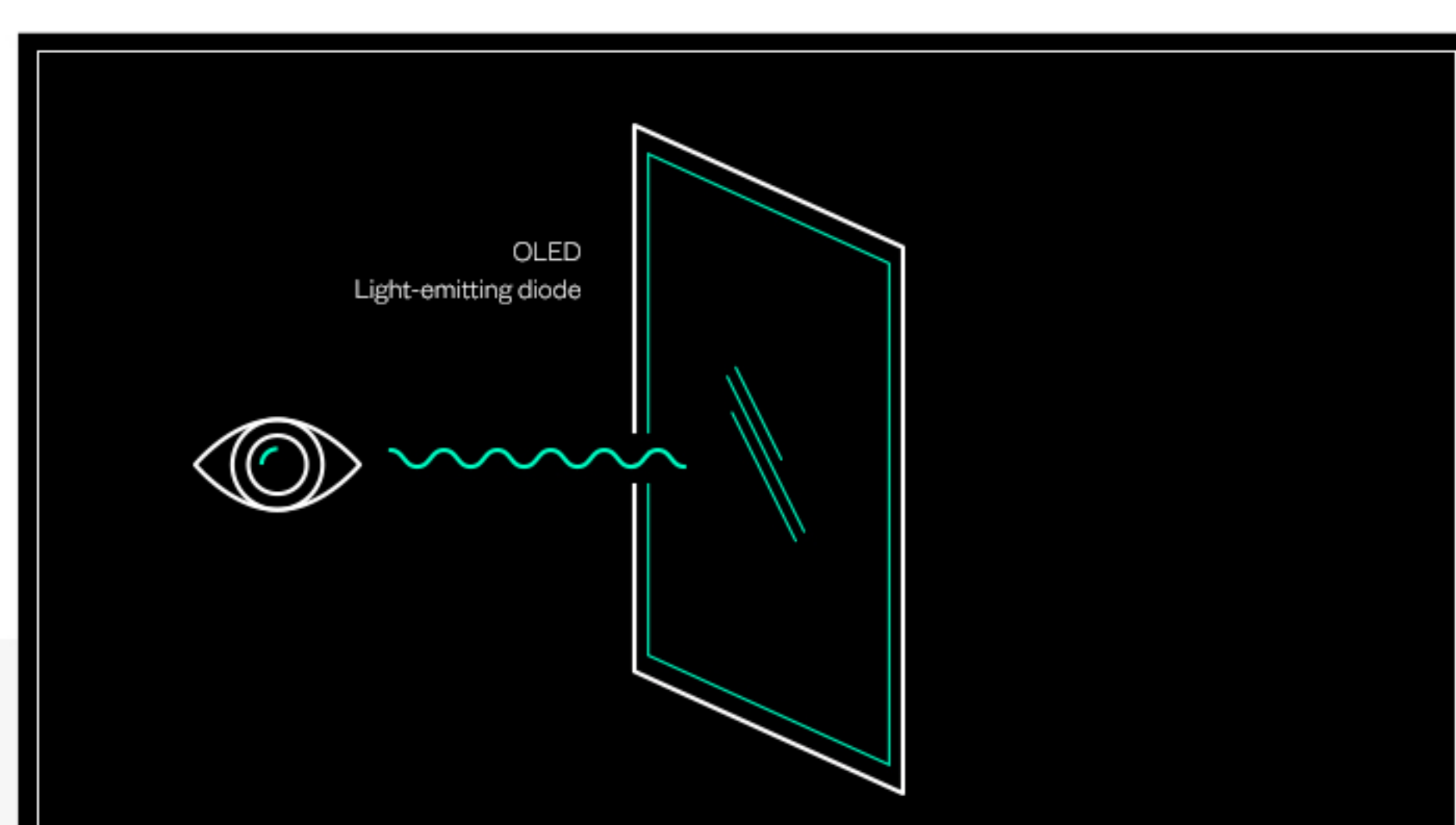
Fig. 2: Transmissive Object



Emissive

Light emits from the pixels in the display themselves (e.g., OLED).

Fig. 3: Emissive Object



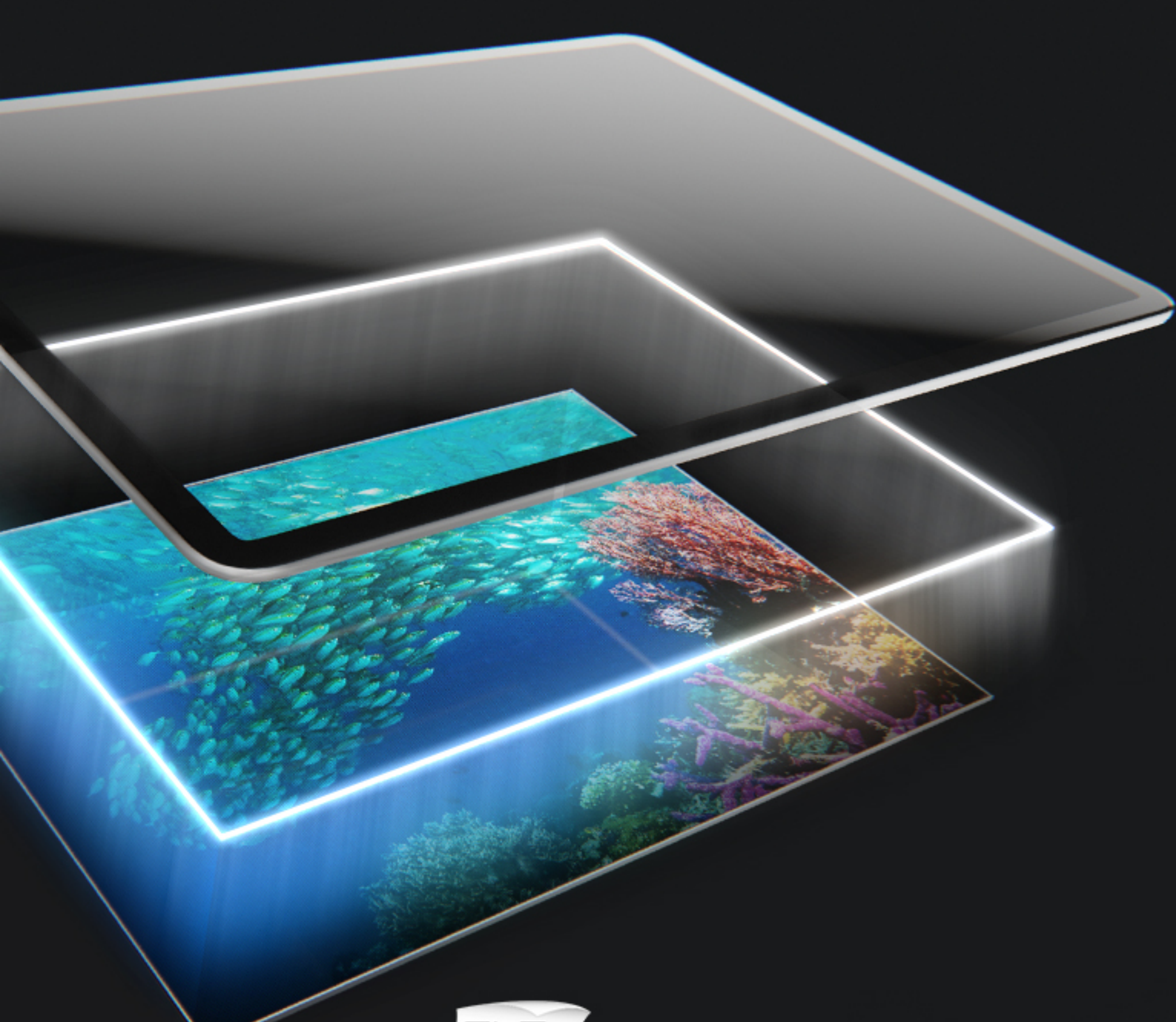
More on Emissives



While OLEDs and the newer micro-LEDs smartly get rid of the inefficient backlight, they both have some serious drawbacks in terms of durability and sourcing.

OLEDs use organic materials (the "O" in OLED), which sounds healthy, but it actually makes them less stable and prone to burnout quickly, which is a big drawback if you want a device to last more than 2 years.

Maybe you've heard of Apple's secret micro-LED lab in California. These tiny LEDs are very difficult to manufacture, and it's not likely that this technology will be ready for the mainstream in the next 5 to 7 years.



Get in Front with FLEx



Most people think front lighting a Reflective LCD screen isn't possible, but FLEx has engineered a high-performance optical system about the thickness of a human hair that's changed that. The technology works in old or new form factors with off-the-shelf LEDs, making it a smart choice for device makers who need their devices to work inside and outside and hold a charge for as long as possible.

About FLEx

FLEx frontlit technology is changing the way we look at our devices. Since 2004, FLEx has been a world leader in lighting solutions, and in constant pursuit of the world's thinnest lighting system.