


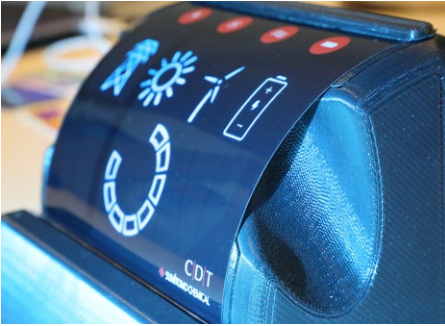
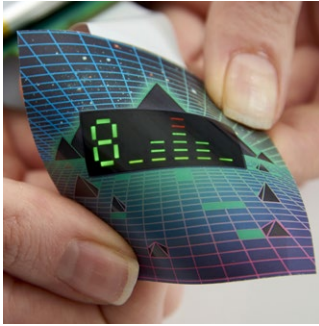

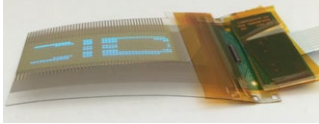

## Printed Flexible OLED Displays

CDT's FlexOLED displays bring OLED image quality to a cost-effective manufacturing platform, enabling devices with enhanced design flexibility while maintaining low operating voltages.

### Key Technology Status:

- RGBW 400 cd/m<sup>2</sup> achievable at less than 5V operating voltage.
- Air-deposited active layers and air-stable cathode.
- Straightforward encapsulation process (lamination) with an off-the-shelf material, offering shelf life > 10 years.

### Technology features

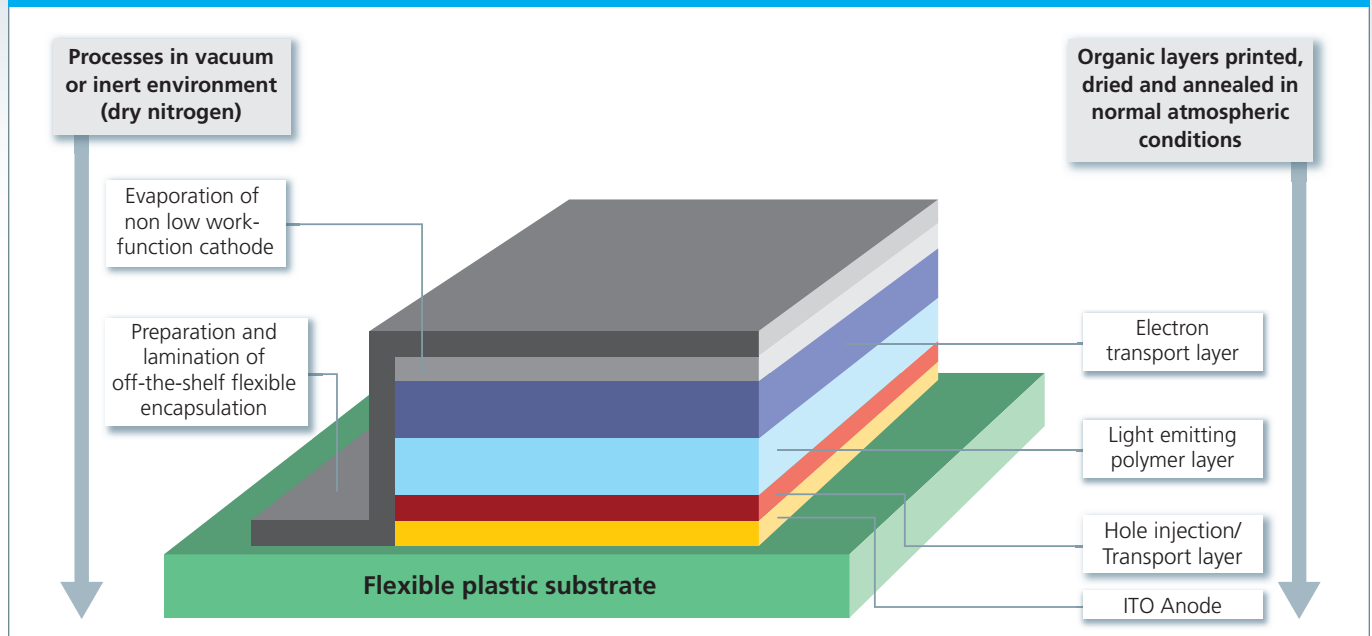
Thin (<0.3mm), lightweight and flexible	Single and multicolour emission	Distributed flat emission over large area	Low drive voltage and long lifetimes	Mechanical robustness	Low power requirements; mains and battery power possible
					
Near Field Communication (NFC) powered OLED	6" Touch Sensitive HMI device – 300 µm thickness and fully flexible Single, multicolour Ink Jet printed OLEDs	Multicolour filter overlay and graphic equalizer with 7-segment display 30ppi flexible passive matrix OLED			

### Application Space

Household Appliances, White Goods			<ul style="list-style-type: none"> <li>■ Thin, lightweight and flexible</li> <li>■ Distributed OLED icons over large area.</li> <li>■ No need for pick and place or diffusers.</li> </ul>
Smart card, Promotional Signage, Security			<ul style="list-style-type: none"> <li>■ Direct integration into production.</li> <li>■ Wide array of designs possible</li> </ul>
Consumer (Medical) Devices, Toys, Wearables			

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### Flexible device structure and processing



### Flexible OLED performance table

	Green	Red	Blue	White
Luminance turn-on	< 20 msec	< 20 msec	< 20 msec	< 20 msec
Operating voltage	< 4 V	~5 V	< 4 V	< 5 V
Luminance	~400cd/m <sup>2</sup>	~400cd/m <sup>2</sup>	~400cd/m <sup>2</sup>	~400cd/m <sup>2</sup>
Operating lifetime	> 20,000 hrs	> 20,000 hrs	> 8,000 hrs	> 20,000 hrs
Drive current density	~3 mA/cm <sup>2</sup>	~70 mA/cm <sup>2</sup>	~5 mA/cm <sup>2</sup>	~5 mA/cm <sup>2</sup>
Power requirement	< 10 mW/cm <sup>2</sup>	< 400 mW/cm <sup>2</sup>	< 15 mW/cm <sup>2</sup>	< 25 mW/cm <sup>2</sup>
Shelf life (under evaluation)	> 10 years	> 10 years	> 10 years	> 10 years
CIE colour	0.30, 0.64	0.68, 0.31	0.14, 0.17	0.35, 0.38

### Working with CDT:

- CDT can design and fabricate prototypes to meet your application needs.
- Sampling of CDT's Flexible OLEDs to trial in your product, application or processing.
- Full life-cycle testing facilities on-site.
- Technology transfer options available for manufacturing partners.
- To discuss working with CDT, please email: [enquiry@cdtltd.co.uk](mailto:enquiry@cdtltd.co.uk)

### Simpler Manufacturing:

- Low cost tool set.
- Additive processing techniques.
- Fast takt time for all processes.
- Organic layers printed and dried in air.
- No low Wf metal required (air stable cathode)
- Reduced encapsulation requirements → simple lamination step.