A school of blue tang fish swimming in clear blue water. The fish are blue with a yellow stripe and a black stripe. The background is a deep blue gradient with a subtle grid pattern.

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EXCEED YOUR VISION

## Exceeding in Culture – Electronic Paper

Marketing Communications – February 2007



# Electronic Paper

Another breakthrough by Epson

**EPSON®**

# Daily life with E-paper

2007

Newspaper

## Space Shuttle Launch, Final Count-down

Space shuttle is committed to achieving co-existence between Environmental Policy. The cornerstone of Epson's environmental philosophy is Environmental Philosophy. Epson will integrate environmental Major Activities. The following activities will be pursued: Creating and providing Earth-friendly products. Transforming all processes to reduce the burden on the environment. Recovering and recycling used products. Sharing environmental conservation efforts. 5. Continually improve international conservation efforts. 5. Continually improve European Environmental Policy. Epson established a Data Environmental Information. Epson believes it is important to publish sustainability reports. Epson strives to be a good corporate citizen. Epson has a long history of environmental press releases. For the latest environmental news from Epson, visit the Epson website.



On the next space shuttle flight to launch a new truss segment, retract a truss segment learned from two previous missions. Commanding the Discovery 5), while Lee Archambault will be the payload specialist, and Patrick Forrester will be the mission specialist. Both mission specialists, join the crew a few weeks before liftoff to participate in launch activities, safety exercises.

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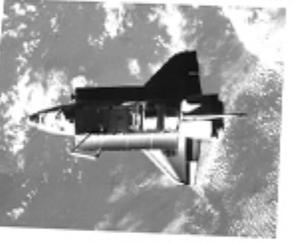
2010

## Message from Astronauts arrived.



### Space shuttle flight

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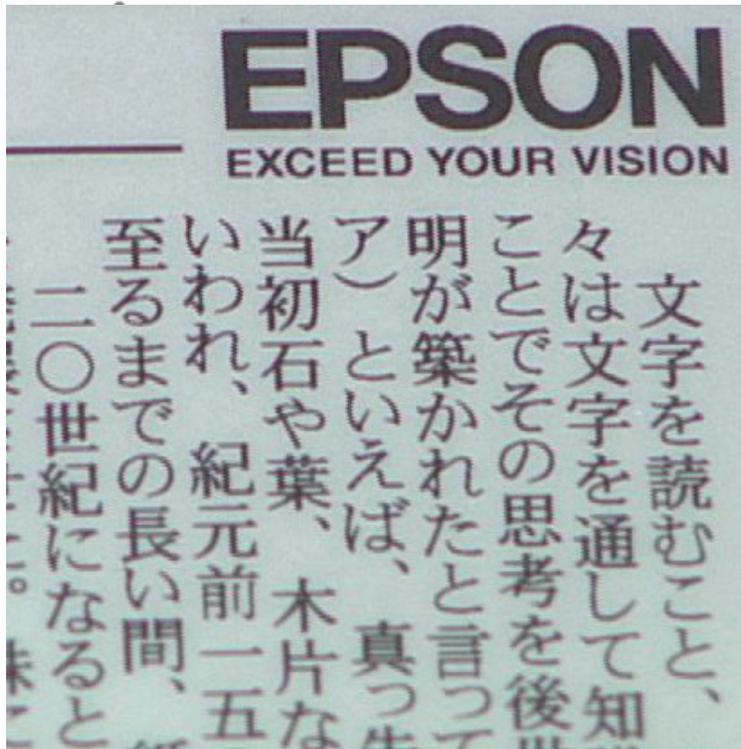
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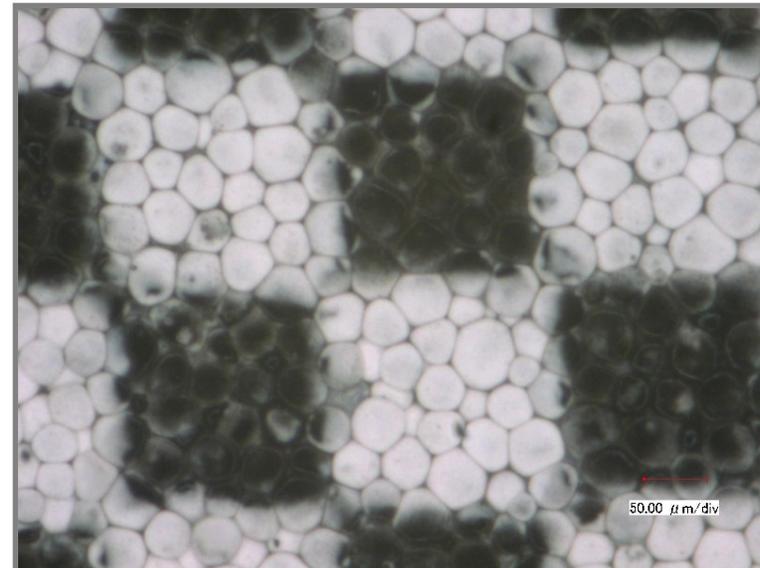
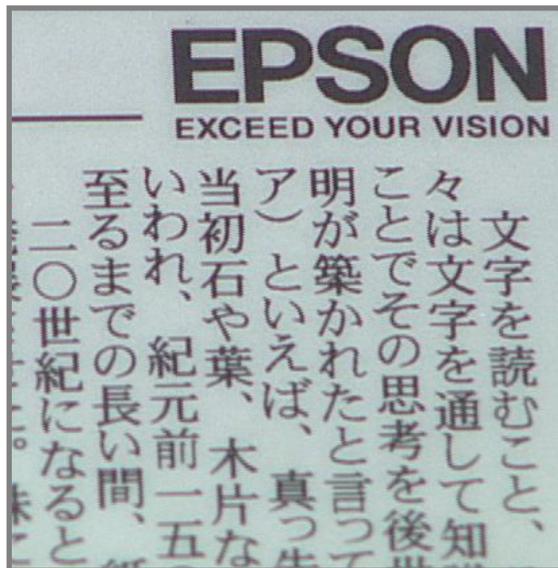
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# E-paper; a truly paper-like display

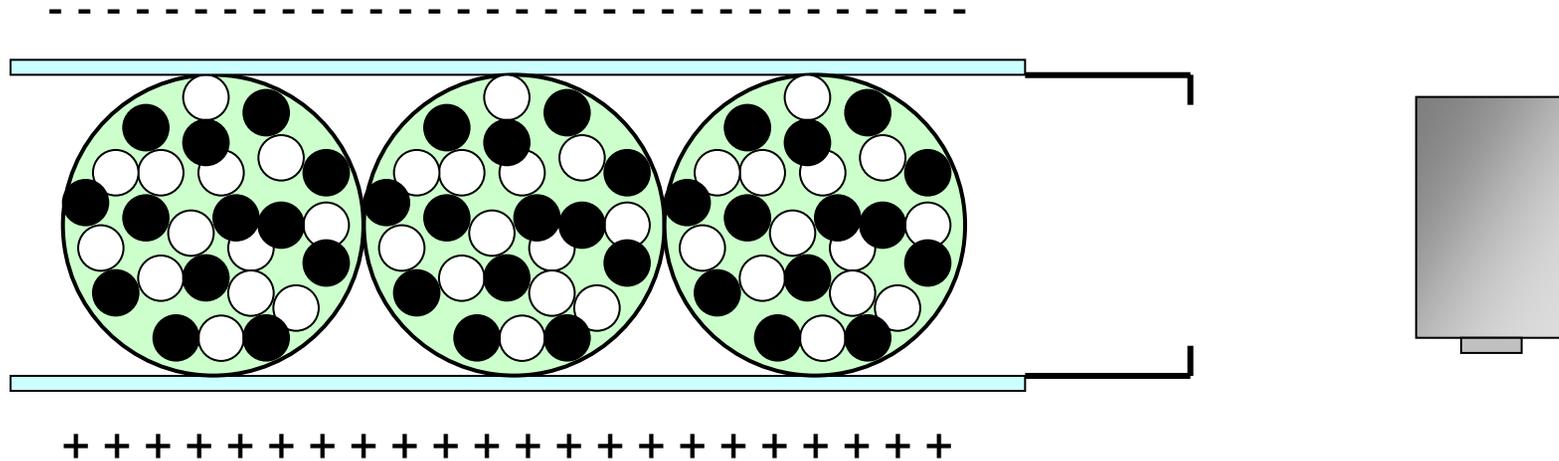


- ▶ Crisp black on white appearance like printed paper  
**Clear even in daylight**
- ▶ No power required to retain image  
**Suitable for portable devices**
- ▶ Very thin and light  
**Suitable for flexible displays**

# Principles of EPD (Electrophoretic Display)

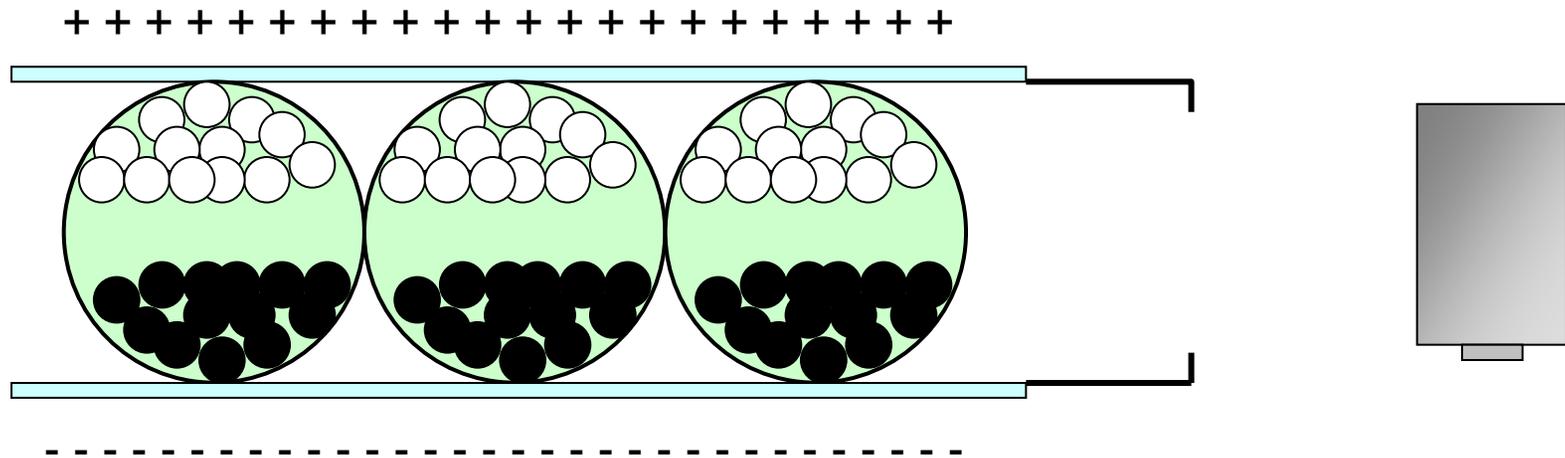


# Principles of EPD (Electrophoretic Display)



- ▶ Black and white particles are contained in micro capsules.
- ▶ Black particles are attracted to + electrode; white particles to -.
- ▶ Attracted particles remain in place even when electrodes return to neutral.

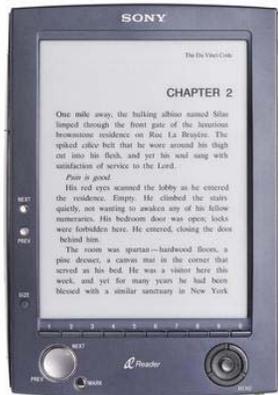
# Principles of EPD (Electrophoretic Display)



- ▶ When voltage is reversed, particles migrate to the other electrodes.
- ▶ Attracted particles remain in place even when electrodes return to neutral.
- ▶ As such, particles remain in place even after battery is removed.

# EPD products currently on the market

Better performance than LCD, but used in a similar way.



Sony Reader  
by Sony



iLiad  
by iRex



Motofone  
by Motorola

EPD: Electrophoretic Display

EPSON®

## EPD fits E-paper

▶ **High definition contrast**

Crisp black on white appearance like printed paper



EPD, Yes

▶ **Low power**

No power required to retain image



EPD, Yes

▶ **Thin and light**

Suitable for flexible displays



EPD, Yes

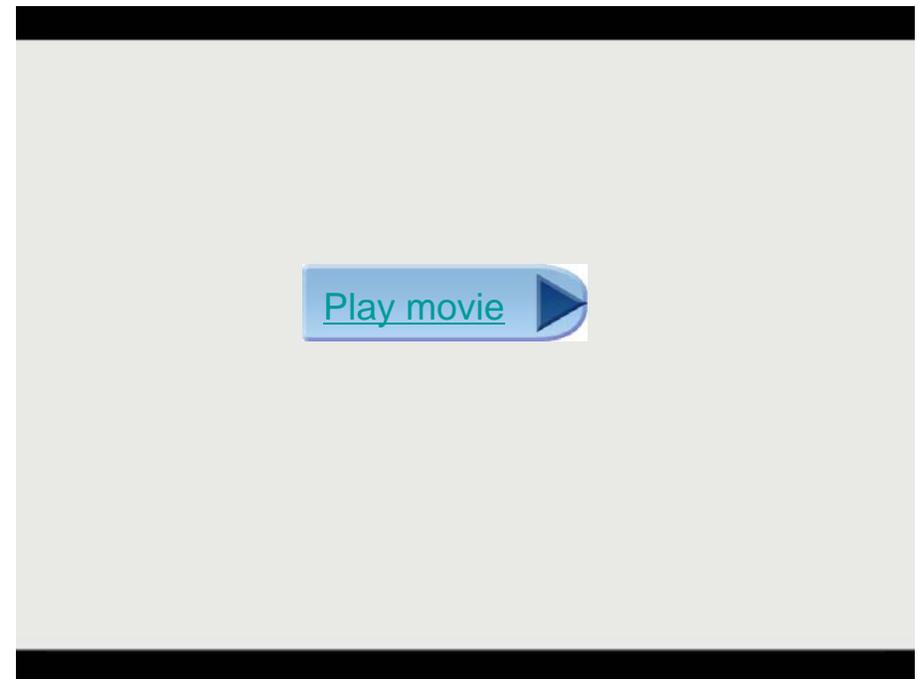
EPD: Electrophoretic Display

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## Seiko Spectrum; a different use of EPD

**A watch like this would not have been possible using any other type of display.**

- ▶ Seiko's bracelet-like watch
- ▶ Very well received for its unique design
- ▶ A sell-out limited edition model



EPD: Electrophoretic Display

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# Epson's new E-guiding system

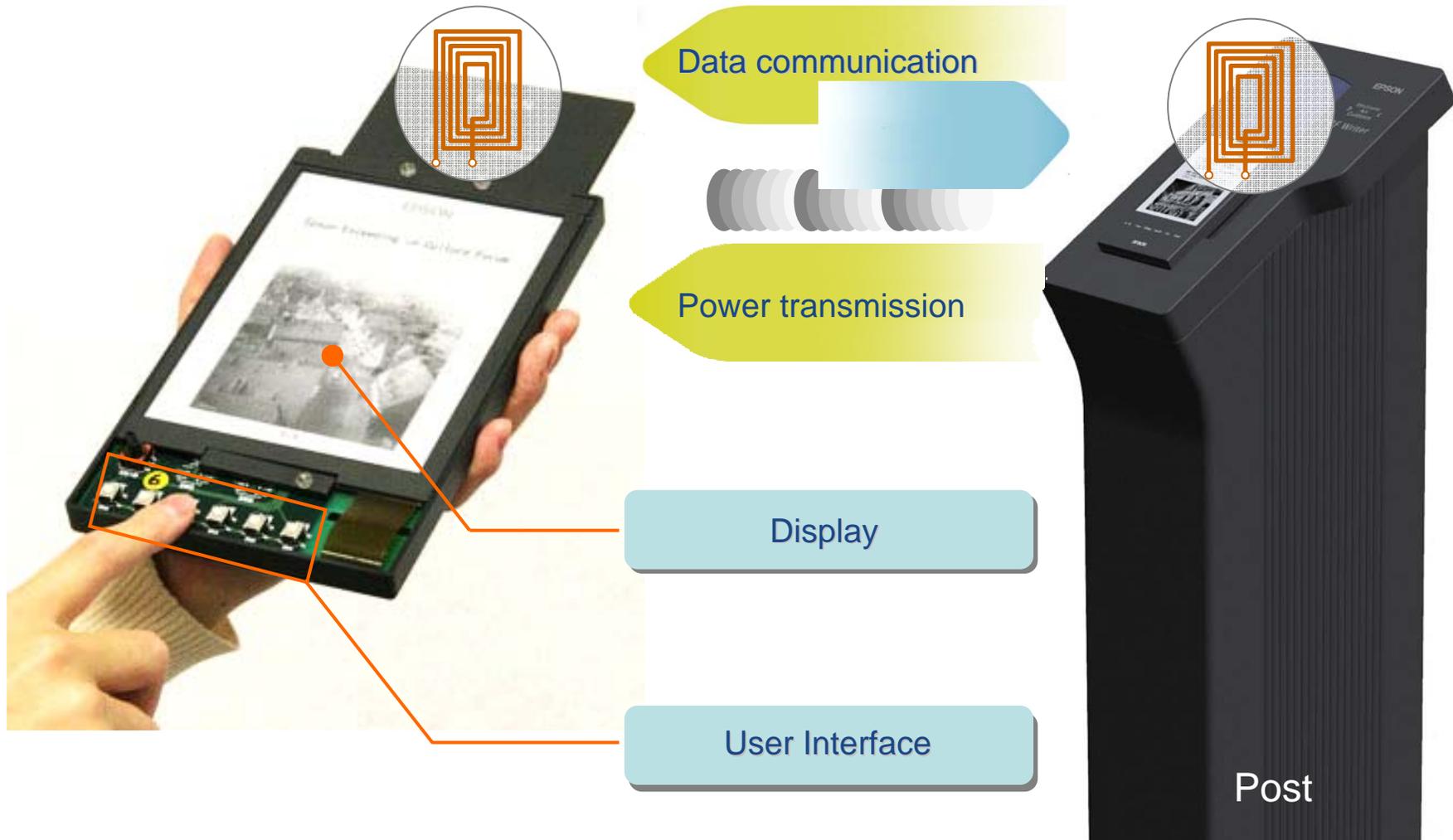


The portable E-guide displays appropriate information when touched to a post placed next to a museum exhibit.

EPD: Electrophoretic Display

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# E-guiding system; integrating Epson technologies

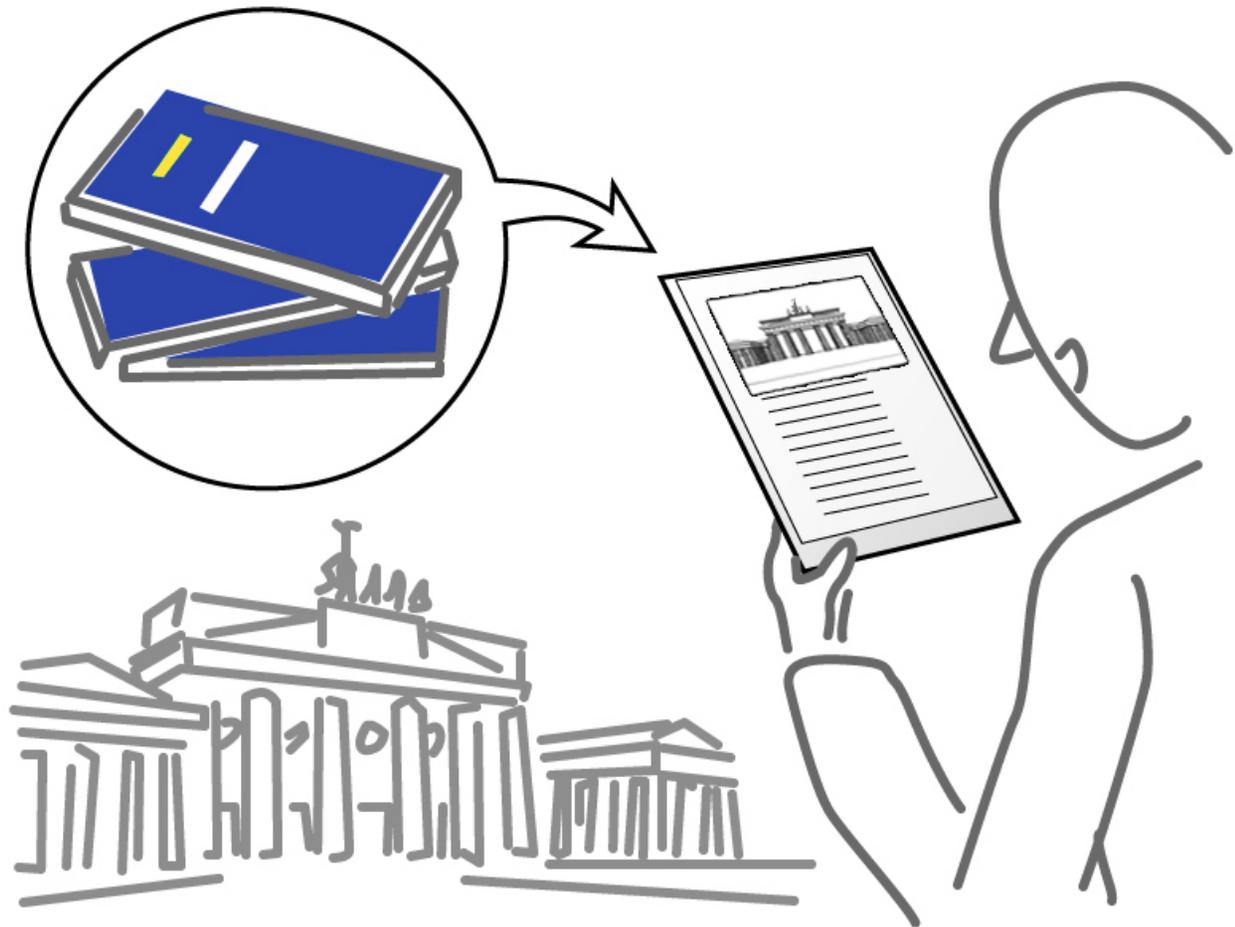


EPD: Electrophoretic Display

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# Our vision for E-Paper

- ▶ A huge amount of data accessible on a single sheet of E-paper
- ▶ Clearly visible text and images even in sunlight



# Epson's unique technologies good for flexible EPD



## ▶ Key Technology

- 1 SUFTLA technology for making large polycrystalline Si TFT films

## ▶ Key Technology 2

- Inkjet technology for making large polymer TFT films

# How EPD is structured

[Play movie](#)

EPD: Electrophoretic Display

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# SUFTLA; the power behind EPD

**SUFTLA - Epson's proprietary technology  
for making flexible Si TFT films**

# Epson's flexible EPD

[Play movie](#)



Demonstration in strong sunlight

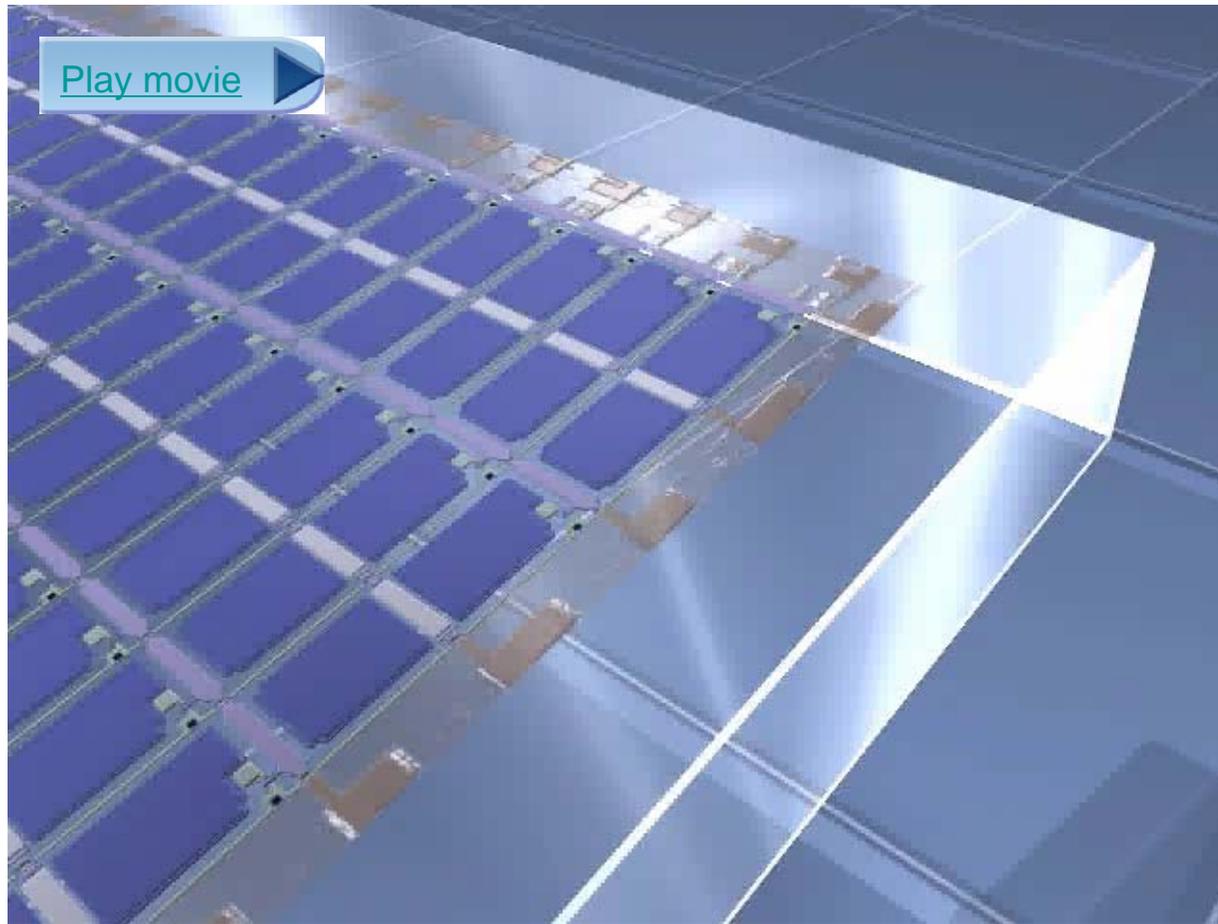
## Key Data

Display area	131 x 98 mm
Number of pixels	2048 x 1536
Pixel size	64 x 64 $\mu\text{m}$
Thickness	430 $\mu\text{m}$
Weight	8.4 g
Image contrast	>10

EPD: Electrophoretic Display

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# SUFTLA; the power behind EPD



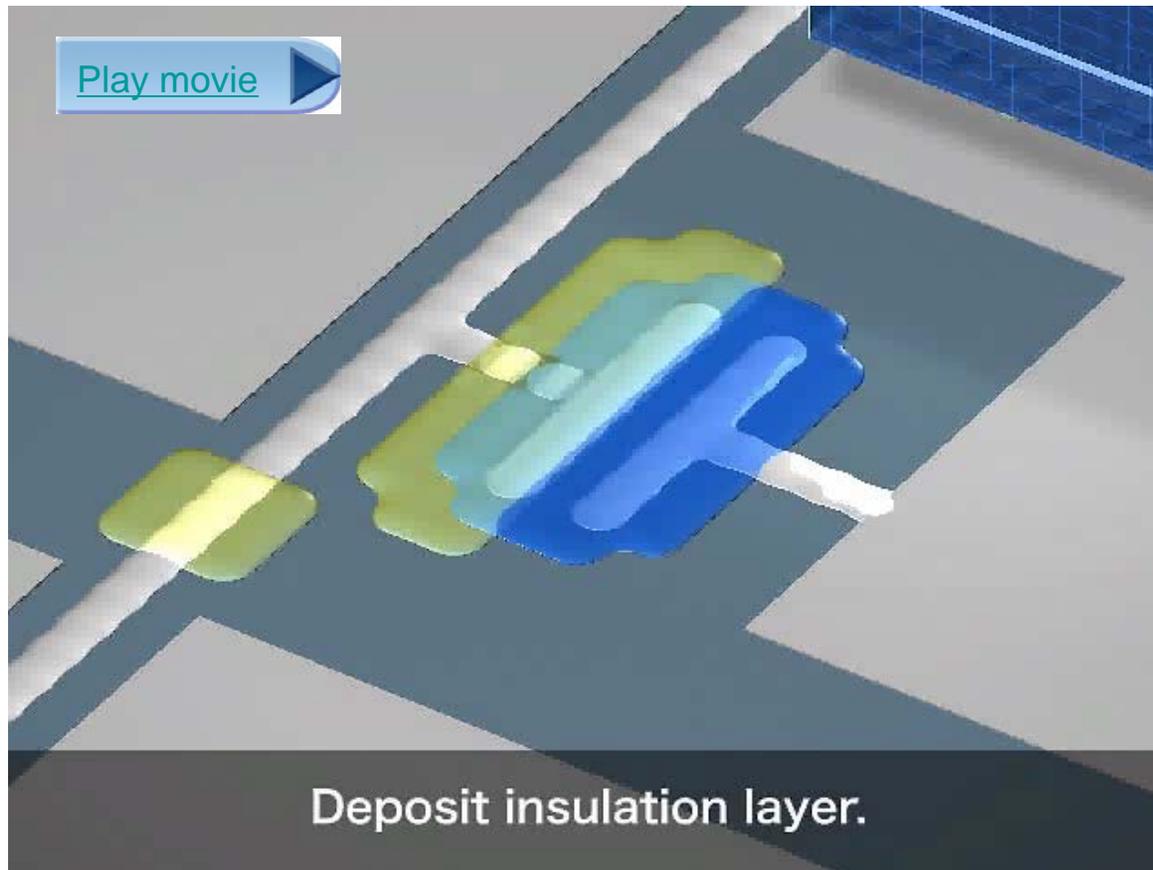
EPD: Electrophoretic Display

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# Making TFT with inkjet technology

## Inkjet technology for making large polymer TFT films

# Making TFT with inkjet technology

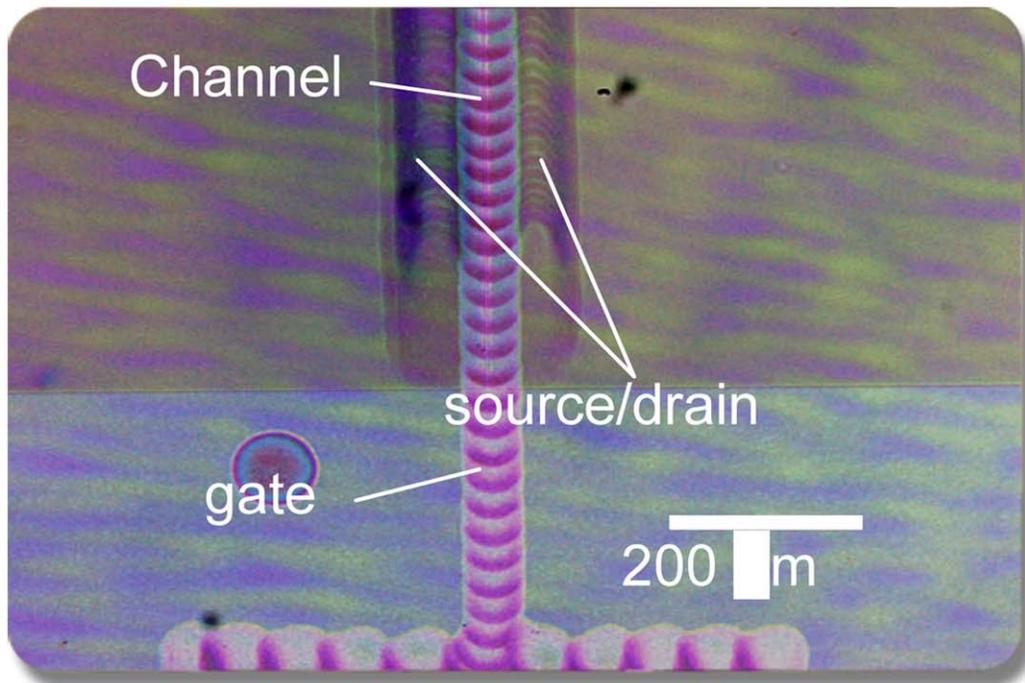


- ▶ Inkjet technology for making large polymer TFT films

EPD: Electrophoretic Display

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## Making TFT with inkjet technology



- ▶ Epson succeeded in making transistors using inkjet technology.
- ▶ This simplifies the TFT process eliminating vacuum processes.

# What makes Epson EPD competitive

## ▶ High definition contrast

Epson understands EPD  
The technologies at our disposal help  
create the clearest EPD

## ▶ Flexibility

The combination of inkjet, SUFTLA  
& Polymer TFT technologies

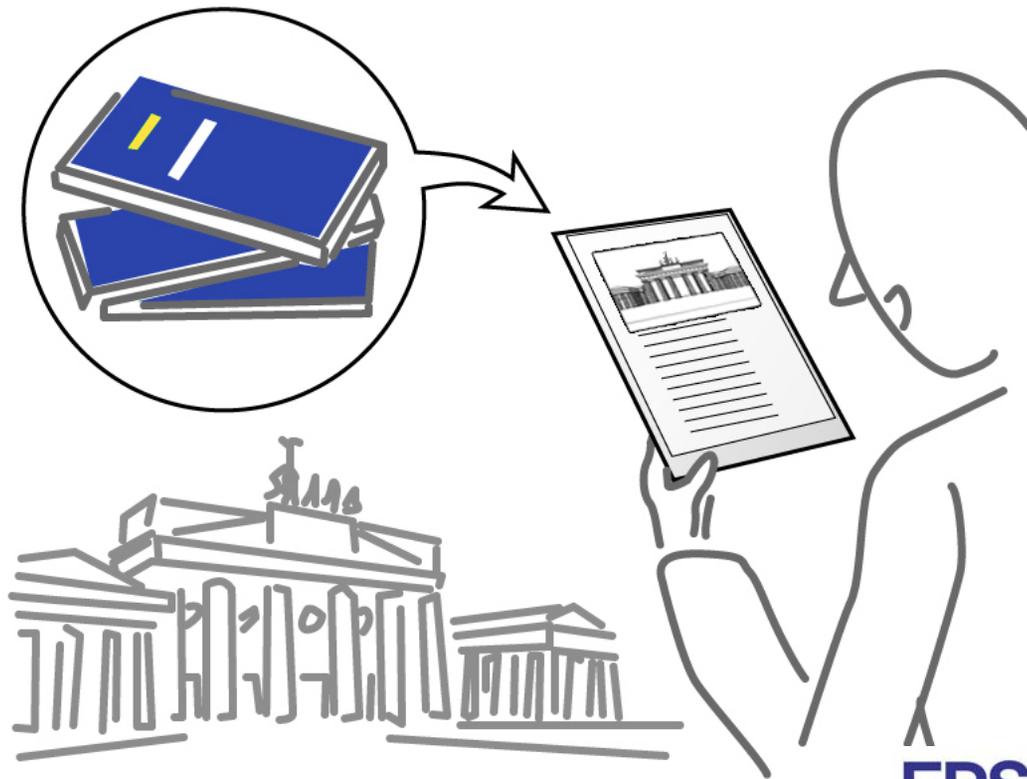
## ▶ System integration

Epson has the technologies and  
know-how to create complete systems  
from separate components



## Our vision for E-paper

**New technologies create new lifestyles. With E-paper, Epson may once again change the way we live.**



EPD: Electrophoretic Display

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