

# Markets and Opportunities for Transparent Displays: 2014 to 2021

https://marketpublishers.com/r/MBC1CE916E1EN.html

Date: January 2014 Pages: 97 Price: US\$ 1,995.00 (Single User License) ID: MBC1CE916E1EN

## Abstracts

NanoMarkets believes that the market for transparent displays is about to expand dramatically. "Smart glasses," such as Google Glass and Augmented Reality (AR) applications have focused attention on displays that can simultaneously display information and function as windows on the real world.

Display firms have begun to respond to these major trends with novel types of transparent displays. To do so they have had to invent new technologies. Transparent TFTs are especially challenging, with the most likely material solution being ZnO, though other options are possible. Hiding backlighting in transparent LCDs is also an issue, creating opportunities for transparent OLED displays; but these have their own challenges too.

In this report, NanoMarkets identifies where the revenues will be generated by transparent displays over the next eight years. In addition to leading edge applications such as smart glasses and AR, this report also considers near-term applications for transparent displays in more mundane applications such as retail and automotive.

This report is designed to be a guide to how transparent displays will be commercialized and provides both a roadmap to how the transparent display market will evolve and an assessment of the latest transparent display technology.

And in addition to granular eight-year forecasts of the transparent display market, this report also discusses the product/market strategies of transparent display makers, both large and small.



# Contents

#### **EXECUTIVE SUMMARY**

E.1 Why Does the Market Need Transparent Displays and Is this a New Mass Market?

E 1.1 Mobile Applications: Vanguard for Transparent Displays

E 1.2 Are Wearables the Next Cell Phones and Will They Use Transparent Displays?

E.1.3 Retail and Marketing Applications: Smaller Addressable Market for Transparent Displays, but More Certain?

E.1.4 Beyond AR and Promo: Other Potential Opportunities for Transparent Displays

- E.2 Key Opportunities for Technology Providers
- E.2.1 Opportunities in Transparent LCDs: Need Clever Ways to Get Rid of BLUs
- E.2.3 Do Transparent Displays Need a New Frontplane Technology

E.3 Opportunities for Materials Firms in the Transparent Display Market: Are There Any?

E.4 Opportunities for System Integrators and Value-added Resellers

E.5 Six Companies to Watch in the Transparent Display Sector

- E. 5.1 Samsung (Korea)
- E. 5.2 LG (Korea)
- E. 5.3 AUO (Taiwan)
- E.5.4 Planar (United States)
- E. 5.5 Google (United States)
- E. 5.6 Apple (United States)
- E.5.7 UDC (United States)

E.6 Summary of Eight-Year Forecasts of Transparent Displays

#### **CHAPTER ONE: INTRODUCTION**

- 1.1 Background to this Report
- 1.1.1 The Problem of Invisible Components in LCD Displays
- 1.1.2 Enter the Transparent OLED
- 1.1.3 Coda: The TFT Factor
- 1.2 Objective and Scope of this Report
- 1.3 Research and Forecasting Methodology
- 1.4 Plan of this Report

#### CHAPTER TWO: TRANSPARENT DISPLAY TECHNOLOGIES

2.1 Transparent Displays in the Context of the Display Industry



- 2.1.1 LED and EL: The First Transparent Display Technologies
- 2.2 LCD-Based Transparent Display
- 2.2.1 Hiding or Eliminating Backlights
- 2.2.2 Suppliers of Transparent LCD Products

2.3 OLEDs

- 2.3.1 Suppliers of Transparent OLED Display Products
- 2.2.2 Suppliers of Transparent OLED Lighting Products

2.4 E-paper

- 2.4.1 Suppliers of Transparent E-paper Products
- 2.4 Materials and Enabling Technologies
  - 2.4.1 Transparent TFTs
  - 2.4.2 Substrate Options for Transparent Displays
  - 2.4.3 Touch-screen Technology in Transparent Displays
  - 2.4.4 Transparent Conductors for Transparent Electronics
- 2.5 Key Points from this 1 Chapter

# CHAPTER THREE: APPLICATIONS AND MARKETS FOR TRANSPARENT DISPLAYS

- 3.1 Scope of Applications of the Transparent Display Technology
- 3.2 Mobile Displays
  - 3.2.1 Early Entries in the Transparent Cell Phone Stakes
  - 3.2.2 The Future of Transparent Displays in Tablets
  - 3.2.3 Laptops and Notebooks
  - 3.2.4 Eight-year Forecast of Mobile Transparent Displays by Application
  - 3.2.5 Wearable Computing and Heads-Up Displays
  - 3.2.6 Smart Glasses
  - 3.2.7 Smart Watches
  - 3.2.8 Eight-year Forecast of Transparent Displays in Smart Glasses
  - 3.2.9 Eight-year Forecast of Transparent Displays in Wearables by Smart Watches
- 3.2.10 Eight-year Forecast of Transparent Displays in Wearables by Frontplane

Technology

#### 3.3 Retail Applications

- 3.3.1 Advertising Displays and Store Windows
- 3.3.2 Display Cases
- 3.3.3 Vending Machines
- 3.3.4 Eight-year Forecast of Transparent Displays in Retail
- 3.4 Building-related Applications
  - 3.4.1 Hybrid Window/Displays



- 3.4.2 Refrigerators and Other Appliances
- 3.4.3 Eight-year Forecast of Transparent Displays for Buildings by Application
- 3.5 Other Markets for Transparent Displays
- 3.5.1 Casino Games
- 3.5.2 Museum Displays
- 3.5.3 Automotive Applications
- 3.5.4 Military Applications
- 3.6 Role of Systems Integrators and Value-Added Resellers
- 3.7 Summary of Eight-year Market Forecasts
- 3.7.1 By Application
- 3.7.2 By Frontplane Technology
- 3.8 Key Points in this 1 Chapter

#### ACRONYMS AND ABBREVIATIONS USED IN THIS REPORT



### About

**ABOUT THE AUTHOR** 



# List Of Exhibits

#### LIST OF EXHIBITS

Exhibit E-1: Eight-Year Revenue Forecasts for Transparent Display Markets by Applications (\$ Millions)

Exhibit E-2: Eight-Year Forecasts for Transparent Display Markets by Frontplane Technology (\$ Millions)

- Exhibit 2-1: Status of Suppliers of Transparent LCD Display Panels
- Exhibit 2-2: Status of Suppliers of Transparent OLED Display and Lighting Panels

Exhibit 2-3: Firms to Watch in the Metal Oxide TFT Space

- Exhibit 3-1: Examples of Transparent Cell Phones and Tablets
- Exhibit 3-2: Prospects for Transparent Laptops
- Exhibit 3-3: Eight Year Forecast for Transparent Displays in LCD Cell Phones
- Exhibit 3-4: Eight-Year Forecast for Transparent OLED Cell Phones
- Exhibit 3-5: Eight-Year Forecast for Transparent LCD Tablets
- Exhibit 3-6: Eight-Year Forecast for Transparent OLED Tablets
- Exhibit 3-7: Eight-Year Forecast for Transparent LCD Laptops
- Exhibit 3-8: Eight-Year Forecast for Transparent OLED Laptops
- Exhibit 3-9: Eight-Year Forecast for Transparent LCD PC monitors
- Exhibit 3-10: Prospects of Transparent Wearable Glasses

Exhibit 3-11: Eight-Year Forecast for Transparent LCD Head Mounted Displays (HMDs) (Industrial and niche applications)

Exhibit 3-12: Eight-Year Forecast for Transparent OLED HMDs (Industrial and niche applications)

Exhibit 3-13: Eight-Year Forecast for Transparent LCD HMDs (Consumer applications)

Exhibit 3-14: Eight-Year Forecast for Transparent OLED HMDs (Consumer applications)

- Exhibit 3-15: Eight-Year Forecast for Transparent LCD Smart Watches
- Exhibit 3-16: Eight-Year Forecast for Transparent OLED Smart Watches
- Exhibit 3-17: Eight-Year Forecast for Total Transparent Wearable Devices Market
- Exhibit 3-18: Prospects of Transparent Advertising Windows and Store Displays
- Exhibit 3-19: Prospects of Transparent Vending Machines
- Exhibit 3-20: Eight-Year Forecast for Transparent LCD Retail Store Displays
- Exhibit 3-21: Eight-Year Forecast for Transparent OLED Retail Store Displays
- Exhibit 3-22: Eight-Year Forecast for Transparent LCD Digital Signage
- Exhibit 3-23: Eight-Year Forecast for Transparent LCD Vending Machines
- Exhibit 3-24: Eight-Year Forecast for Total Transparent Retail Devices Market
- Exhibit 3-25: Prospects for Transparent Appliance-Related Applications



Exhibit 3-26: Eight-Year Forecasts for Transparent LCD Refrigerator and Freezer Doors

Exhibit 3-27: Prospects for Other Transparent Applications

Exhibit 3-28: Eight-Year Forecasts for Transparent LCD Casino Displays

Exhibit 3-29: Eight-Year forecast of Transparent LCD Automobile Windshields, Rearview Mirrors and Dashboards

Exhibit 3-30: Eight-Year Forecast of Transparent OLED Automobile Windshields,

Rearview Mirrors and Dashboards

Exhibit 3-31: Eight-Year Forecasts of Transparent LCD Military HMDs

Exhibit 3-32: Eight-Year Forecasts of Transparent OLED Military HMDs

Exhibit 3-33: Eight-Year Revenue Forecasts of Transparent Display by Applications (\$ Millions)

Exhibit 3-34: Eight-Year Forecasts of Transparent Display by Frontplane Technology (\$ Million)



#### I would like to order

Product name: Markets and Opportunities for Transparent Displays: 2014 to 2021 Product link: <u>https://marketpublishers.com/r/MBC1CE916E1EN.html</u> Price: US\$ 1,995.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service: info@marketpublishers.com

#### Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <u>https://marketpublishers.com/r/MBC1CE916E1EN.html</u>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name: Last name: Email: Company: Address: City: Zip code: Country: Tel: Fax: Your message:

\*\*All fields are required

Custumer signature \_\_\_\_\_

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <u>https://marketpublishers.com/docs/terms.html</u>

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970