The employment of touch panels on mobile phones has paved the way for easy access to various operations. Moreover, there are increased demands for more specifications with the mobility, notably for outdoor readability. Touch panel makers are seeking ways to catch both greater specifications and lower cost at the same time, amid rapidly falling touch panel prices. Thus, the capacitive touch panel structure is undergoing the sea of changes.

Capacitive touch panels could be largely divided into the GG method (cover glass + ITO glass sensor), mostly used by Apple, and the GFF type (cover glass + two ITO film sensors). However, recent developments have introduced new structures that are more efficient in production and cost; ones with superior optical traits; and some with favorable weight/thickness.

Regardless of the type, the cover glass and touch sensor have a high cost ratio for all structures. As for 10.1-inch tablet PCs, the cover glass takes up 35% and the touch sensor around 30~32% for both GG and GFF types, which is why all the attention is being put on touch sensors.

With the rapid growth of the tablet PC market, the ITO film market has seen a staggering growth in demand with more manufacturers, which once insisted on glass sensors, switching over to film. The ITO film industry is even faced with supply shortages because it was late in responding to the exploding demand.

Against this backdrop, Displaybank, recently acquired by IHS Inc. (NYSE:IHS), analyzes and forecasts the ITO film/ITO glass market, technologies, and industry. This report forecasts the market by continuously observing and assessing the following issues.

1. **ITO Sensor Market Forecast**
   Market forecast based on future touch panel strategies; cost simulations; possible supply capacity; and surrounding infrastructure of the major models, such as the iPad, the iPhone, the Galaxy Note, and the Galaxy.

2. **Film Sensor**
   Considered enhanced outdoor readability through narrow bezel, use of sunglass film, and increased direct bonding; greater demands for fine patterning as a result of enhanced readability; the problem of resistance which is an obstacle to upsizing; and trends surrounding replacements.

3. **Glass sensor**
   Considered the employment of thin-film glass; and how to maintain the side solidity to expand the sheet G2 market.
About IHS Electronics & Media

IHS Electronics & Media combines market, technology and supply chain analysis and forecasts at every operational step of the electronics value chain from strategy, planning and analysis to product design and development and supply chain management.

About IHS (www.ihs.com)

IHS (NYSE: IHS) is the leading source of information and insight in critical areas that shape today’s business landscape, including energy and power; design and supply chain; defense, risk and security; environmental, health and safety (EHS) and sustainability; country and industry forecasting; and commodities, pricing and cost. Businesses and governments in more than 165 countries around the globe rely on the extensive content, expert independent analysis and flexible delivery methods of IHS to make high impact decisions and develop strategies with speed and confidence. IHS has been in business since 1959 and became a publicly traded company on the New York Stock Exchange in 2005. Headquartered in Englewood, Colorado, USA, IHS employs more than 6,000 people in more than 30 countries around the world.

Table of Contents

I. Introduction
   Research Background
   Research Methodology
   Research Scope and Definitions

II. Touch Panel Market and Industry Trend
   1. Touch Panel Introduction
      1.1. Popularization of Smart Devices
         – Full Touch Screens
      1.2. Touch Panel Technology and Mechanism
      1.3. Changes in the Touch Panel Market
      1.4. Representative Touch Panel Products
      1.5. Synthesis: Projected Capacitive Touch Panel Structure and Products
   2. Touch Panel Market Forecast
      2.1. Classification of Segments by Application
      2.2. Overall Touch Panel Market Forecast
      2.3. Market Forecast by Technology
      2.4. Market Forecast by Major Application
      2.5. Application Market Forecast
         by Touch Panel Technology
      2.6. Adoption of Touch Technology
         by Major Applications
      2.7. Market Forecast by Projected Capacitive
         Touch Panel Layer Structure
      2.8. “One layer solution” Market Forecast
         by Film/Glass Material
   3. Film Sensor/Glass Sensor Comparison
      3.1. BOM Cost Comparison (4.7”, 7”, 10.1”, 14”)
      3.2. Wider Usage of Film Solution
         – Touch Ultrabook
      3.3. Film Solution and Glass Solution
         Comparison
      * Touch Solution: Film Solution (GFF, GF2, GF1), Glass Solution (GG, G1, G2)
      In-cell/On-cell, Hybrid Solution (G1F)

III. ITO Film Market and Industry Trend
   1. ITO Film Technology and Requirements
      1.1. ITO Film Structure and General Manufacturing Process
      1.2. ITO Film Material Characteristics
      1.3. ITO Film Types (Crystalline, Amorphous)
      1.4. ITO Film Efficiency and Evaluation Method
      1.5. Requirements of ITO Film by Each Method
      1.6. Touch Panel ITO Film Technology
         – Touch Panel’s Requirements & Solution
      *Capacitive Touch Panel, ITO Reduction, ITO Film Surface Treatment, Low Reflection ITO Film, Design Features
   2. ITO Film Market Forecast
      2.1. Grounds for Market Assessment
         – Touch Layer
      2.2. Total ITO Film Market Forecast
      2.3. Market Forecast by Touch Panel Technology
      2.4. Market Forecast by Major Application
      2.5. Market Forecast by Major Technology Application

3. ITO Film Line Status and Production Capacity
   3.1. Line Status and Production Capacity by Major Manufacturer
   3.2. Total ITO Film Production Capacity
   3.3. ITO Film Production Capacity by Manufacturer/Country, Index Chart

4. ITO Film Supply & Demand Analysis

5. ITO Film Supply Chain Status
   and Price Trend

6. ITO Film Price Trend

6. ITO Film Market Trend

IV. ITO Glass Market and Industry Trend
   1. ITO Glass Market Forecast
      1.1. Overall ITO Glass Market Forecast
      1.2. ITO Glass Market Forecast
         by Major Application
      1.3. ITO Glass Market Forecast
         by Touch Panel Technology
      1.4. ITO Glass Market Forecast
         by Resistive Touch Panel Technology
      1.5. ITO Glass Market Forecast
         by Capacitive Touch Panel Technology
       1.6. ITO Glass / Film Demand Forecast
          by Capacitive Touch Panel Application
          (Smartphone, Tablet PC, Laptop)

2. Major ITO Glass/ITO Glass Sensor
   Manufacturer Line Status
   and Production Capacity

2.1. Major Manufacturer Line Status
   and Production Capacity

2.2. Synthesis: Major Manufacturer Line Status by Region – Taiwan, Korea, Japan, China

3. ITO Glass Industry Issue

3.1. Adoption of Thin –type ITO Glass

3.2. G1/G2

3.3. Sheet G2 Side Solidity