

## Fact Sheet: Advanced High Performance In-Plane Switching (AH-IPS)

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### **What is Advanced High Performance In-Plane Switching (AH-IPS)?**

As the demand for and usage of smart devices (smartphones, tablets, etc) increases sharply, IPS display technology has been expanding its market share with more and more electronics makers looking to utilize IPS in their products. As a result, the IPS panel manufacturer industry is now a highly crowded and competitive one.

**AH-IPS (Advanced High Performance In-Plane Switching)** developed by LG Display represents the next step beyond IPS. Boasting brighter and clearer colors as well as lower power consumption than IPS, AH-IPS is well poised to lead the LCD panel market for smart devices cementing LG Display's already No. 1 position in the field.

#### **Reference) What is IPS?**

Liquid Crystal Display (LCD) technology is classified into the three categories of TN, VA and IPS depending on the liquid crystal driving method. TN (Twisted Nematic) panels, the first to be commercialized, feature the simplest structure, but have limited viewing angles. Efforts to overcome this drawback led to the development of the IPS (In-Plane Switching) and VA (Vertical Alignment) technologies. In VA panels, the liquid crystals are vertically aligned. On the other hand, liquid crystal molecules are aligned in a horizontal direction in IPS panels, resulting in superior picture quality and wider viewing angles. IPS panels boast consistent color reproduction regardless of the viewing angle.

### **AH-IPS as the Best Solution for Smart Mobile Devices**

AH-IPS allows consumers to enjoy their smart mobile devices longer at the highest display settings wherever they may be. The feature advantage of AH-IPS is its high resolution. LG Display was able to achieve a super high pixel density by squeezing more pixels than the greatest amount which can be perceived by the human retina into the display. In fact, the pixel density of AH-IPS is so high that the naked eye will be unable to distinguish between individual pixels.

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#### **► Why AH-IPS?**

##### **1) Why High Resolution?**

- A. High resolution over 300ppi is one of the key factors for better readability.
- B. Sharpness is important to quality Web/Internet browsing, SNS and camera use.  
→ **AH-IPS achieves high resolutions of 300ppi and over by realizing 1.5 to 2 times the resolution of typical smartphone LCD panels.**

##### **2) Why Natural Color?**

- A. Mobile devices should offer the same image quality as TVs, for great display enjoyment wherever customers may be.
  - B. As the role of electronic devices continues to expand in people's daily lives, the need for a precise image display is also increasing (i.e. online shopping, medical use).
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- **AH-IPS improves color accuracy which in turn leads to precise reproduction of the original color without distortion.**  
**(sRGB 100%,  $\Delta u'v'$  0.007)**

### **3) Why Outdoor Readability?**

- A. Outdoor usage accounts for approximately 20% of daily mobile usage.  
B. High brightness is critical to outdoor readability.  
High brightness also helps to prevent eye fatigue indoors.  
→ **AH-IPS with high brightness enabled by high transmittance and LED intensity offers a better ambient contrast ratio.**

### **4) Why Long Battery Time?**

- A. Consumers are dissatisfied with the battery life of most current smartphones.  
B. 60% of the time spent using smartphones involves data traffic like web browsing, SNS, maps, etc. which predominantly utilize a white background color.  
→ **AH-IPS in smart devices provides lower power consumption across a wide range of uses due to the high light transmission ratio.**
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