



# **LED Market Trend Oct09**

## **(for LEDinside Value Members)**



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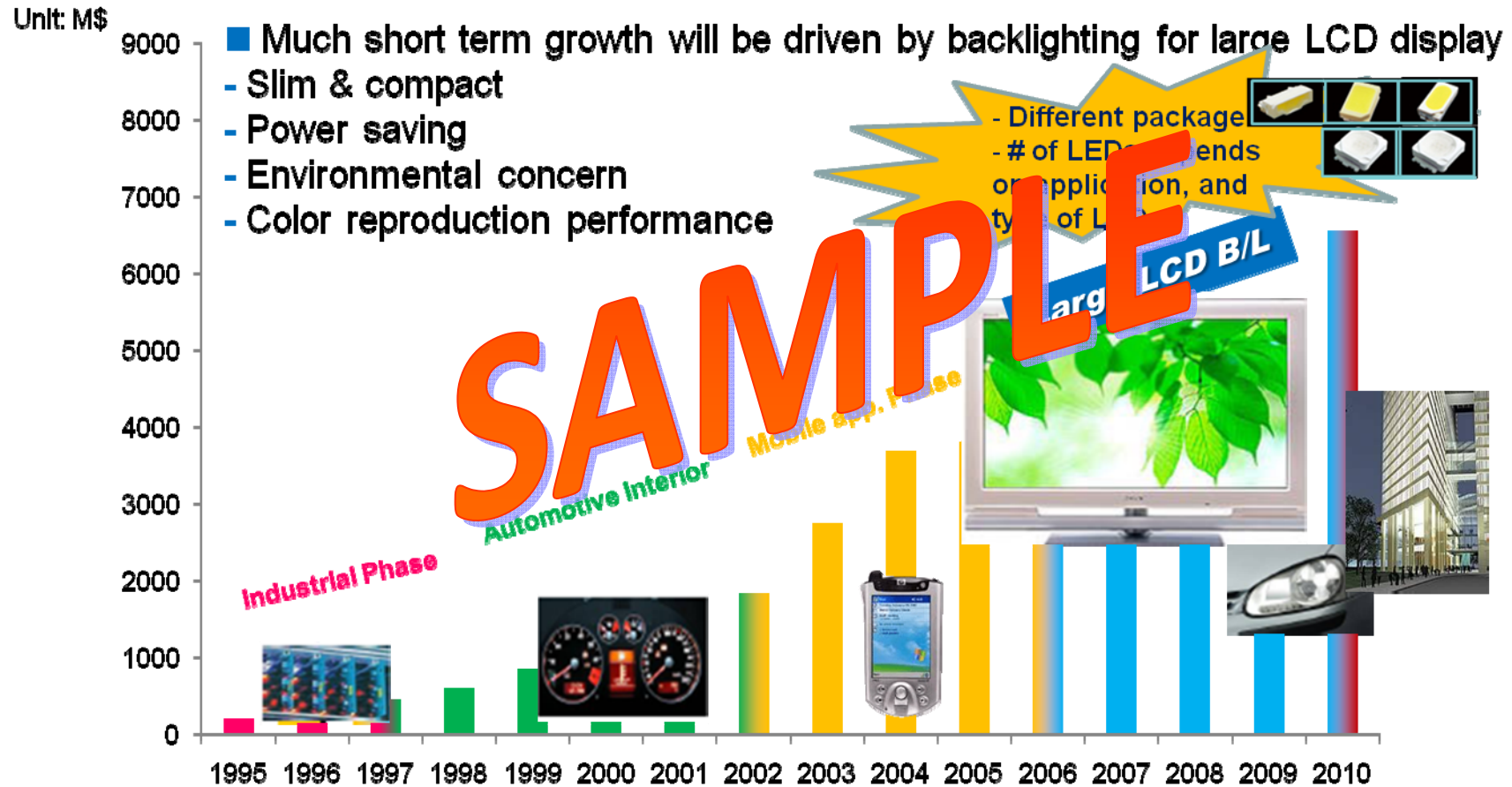
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# LED Market Forecast for Large LCD Backlighting



# Growth Driver of LED Backlighting



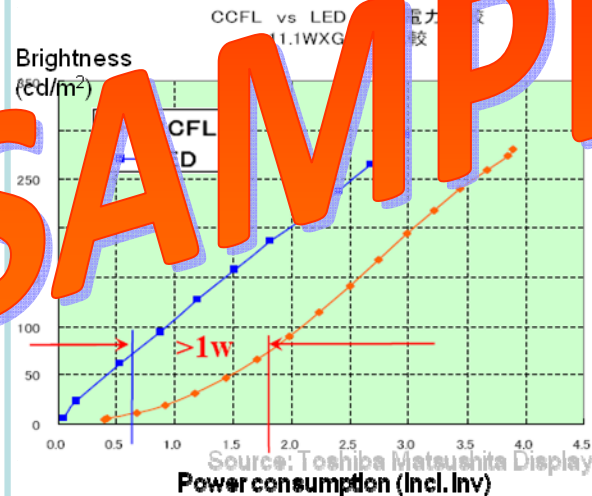
# Winning Factors of LED B/L

- Compact design to minimize the thickness, as less than 1/3 of traditional, CCFL backlighting design



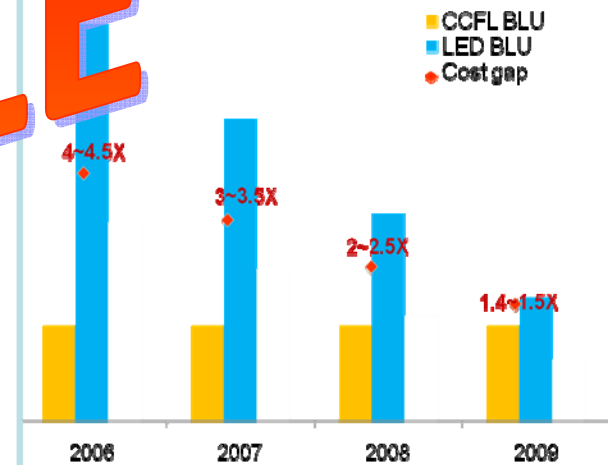
1/3 of thickness

- More than 30% power saving to ease the critical battery issue in the mobile appliance.



30~50% Power saving

- Technology advance to drive the cost down and be cost competitive to CCFL



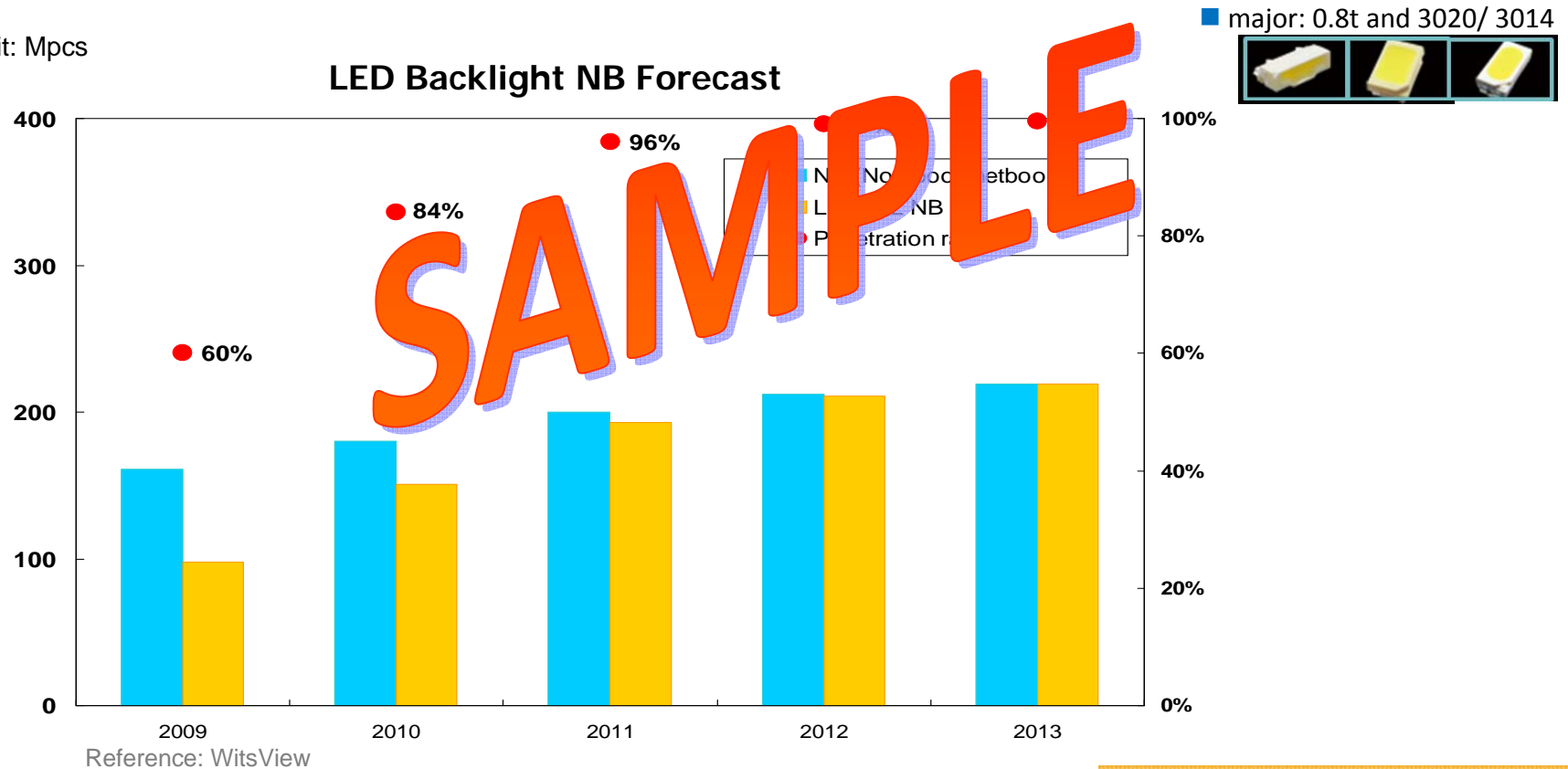
Cost competitive

## LED Backlighting Dominant NB Market

LED becomes the main light source, to replace CCFL, in NB backlighting application:

- 100% penetration in Netbook already
- And, to reach 100% penetration rate in notebook in coming 2 years.

Unit: Mpcs





# Gateway of LED Backlighting TV

- LED backlit LCD TVs have been on the market since 2004
  - 46" Sony Qualia 005
  - Too expensive for high sales volumes (US\$7,687 for 42 inch, \$10,000 for 46 inch)

- While the consumer interest was initially captured successfully by Samsung, the aggressive LED backlight promoter, this market has since been dominated by Samsung since April 2009

**SAMPLE**

Full range of LED B/L LCD TV lined up in Samsung since April 2009



LN-B6000 series



LN-B7000 series



LN-B8000 55"



46 Inch



40 inch



32 Inch



# LED Backlight TV Line-up

YR 2009

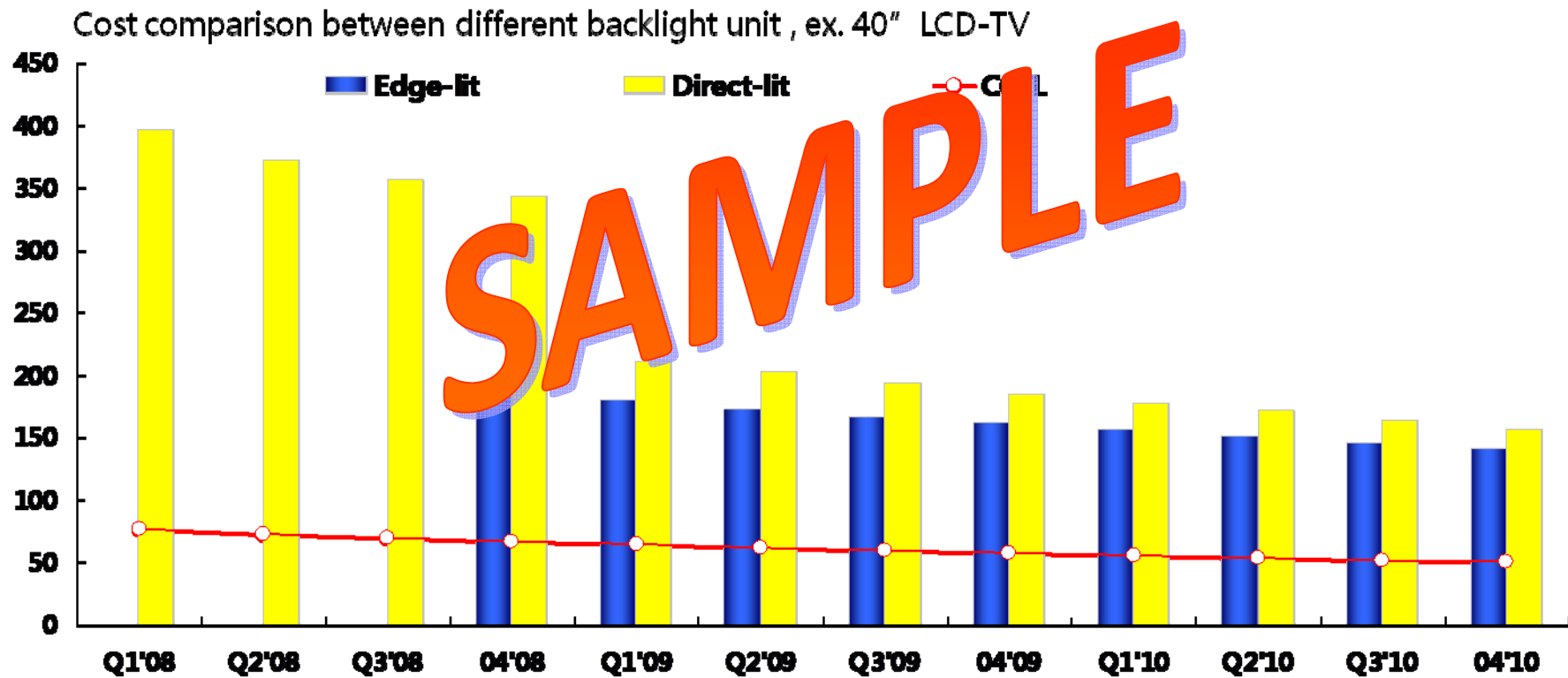


- Strategies vary among key players, so do the LED PKG  
 - While, the edge-lit w/ white LED is prevailing currently....



# Cost Comparison btw Backlight Units

- Cost reduction is critical for LED backlighting

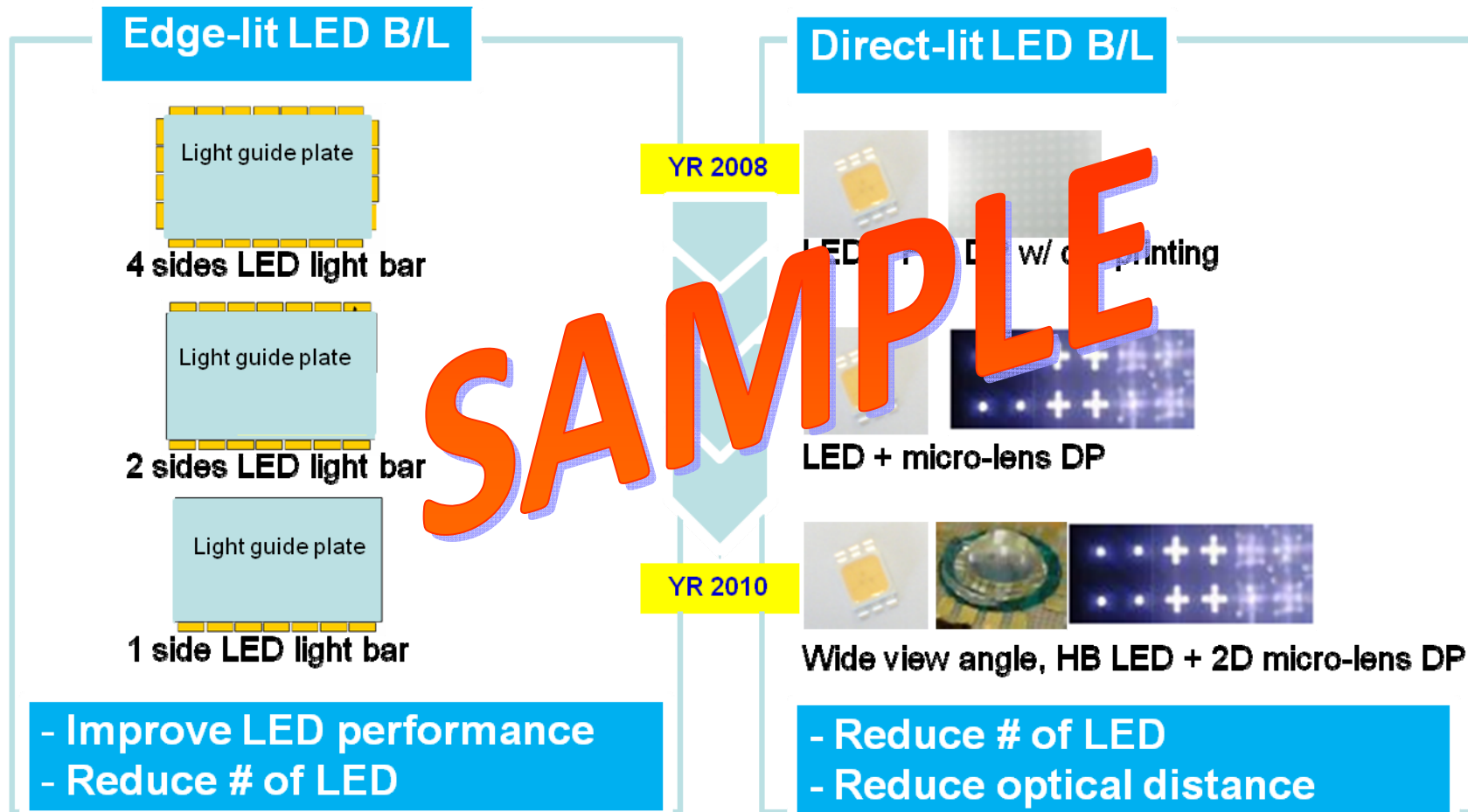


Source: ITRI/ IEK

Remark: The cost of inverter and LED driver device is not included in the cost data



# Solution Integrated for Cost Saving



Ref.AUO

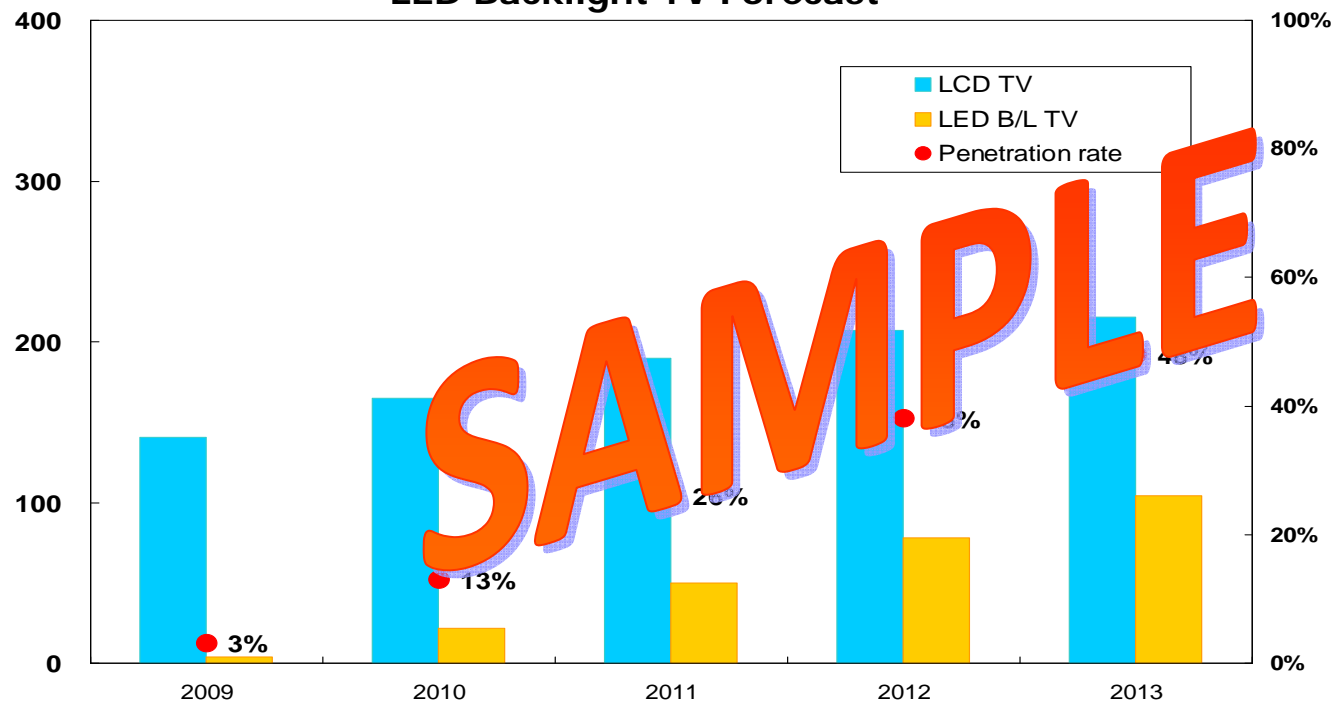


## LED Backlight in LCD TV is Surging

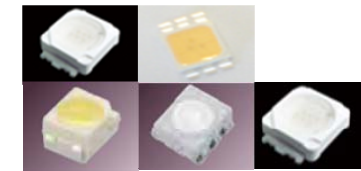
- Hot topic of environmental friendly as one of the key drivers for adoption
- Compact and stylish design attract consumer interest
- Heavy promotional activities motivate buying behavior

Unit: Mpcs

LED Backlight TV Forecast



■ Different pkgs are developing

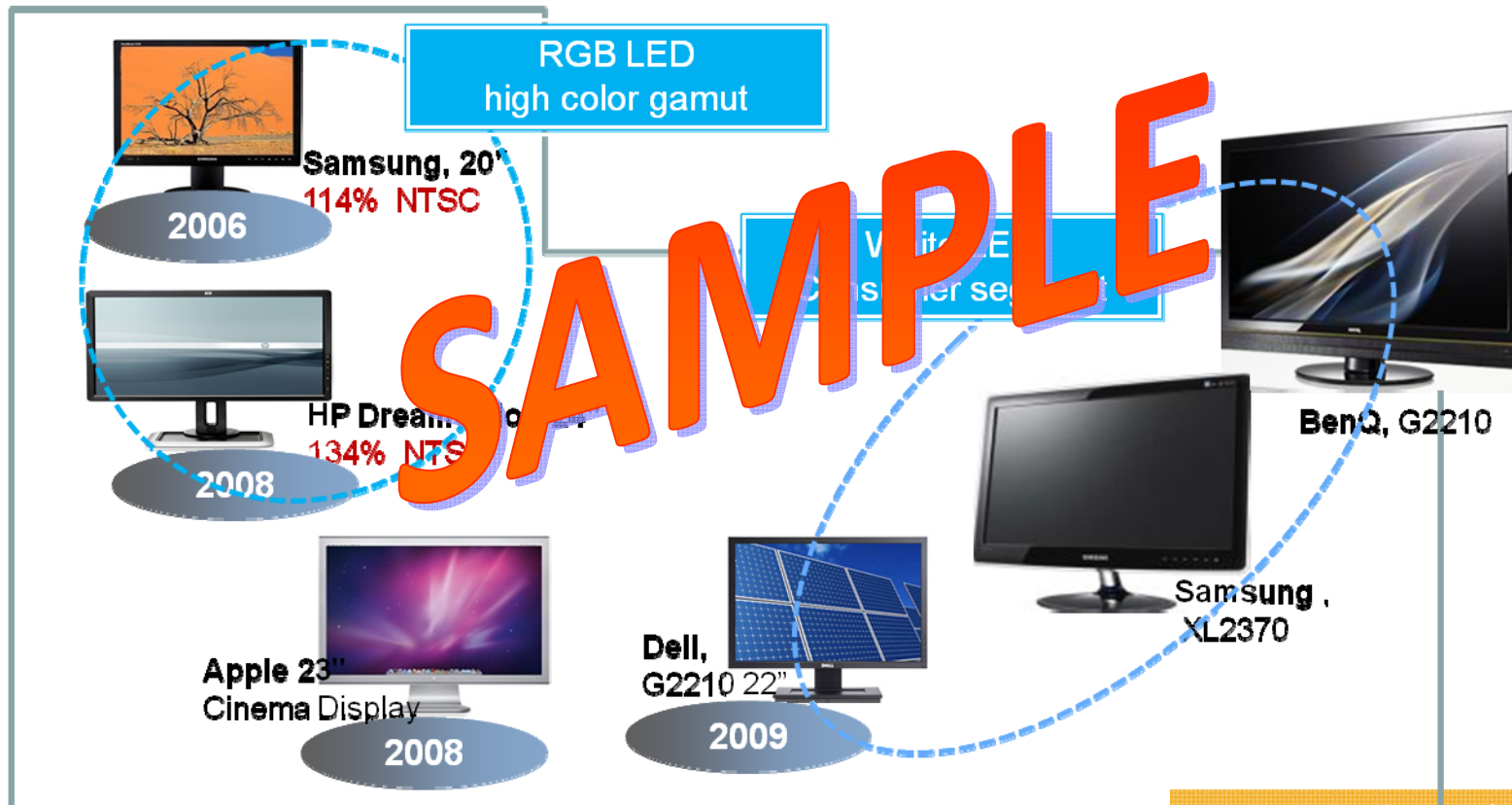


Reference: WitsView



# LED Backlight Monitor is Emerging

- Introduced to market since 2006, while failed to boost popularity as premium price and bulk design
- Key player, S/S, has always aggressive in promoting LED backlight
- Low cost, economic solution will dominant the consumer market (except some professional segment)



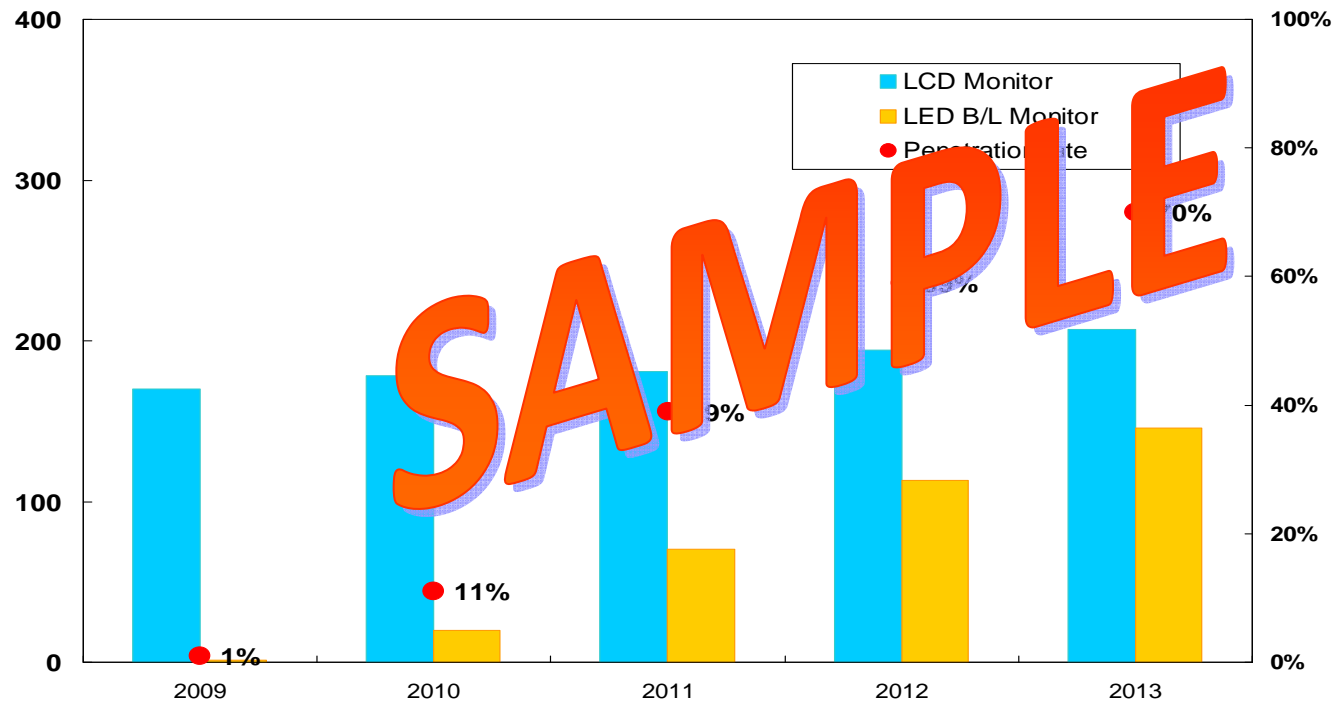


## LED Backlight Monitor Forecast

- Key players favor green product and commit to promotion of LED B/L solutions
- Less complexity than backlighting in TV
- The barriers will be the cost, cost due the price sensitive of the application nature

Unit: Mpcs

LED Backlight Monitor Forecast



■ major: 3020 & 3014



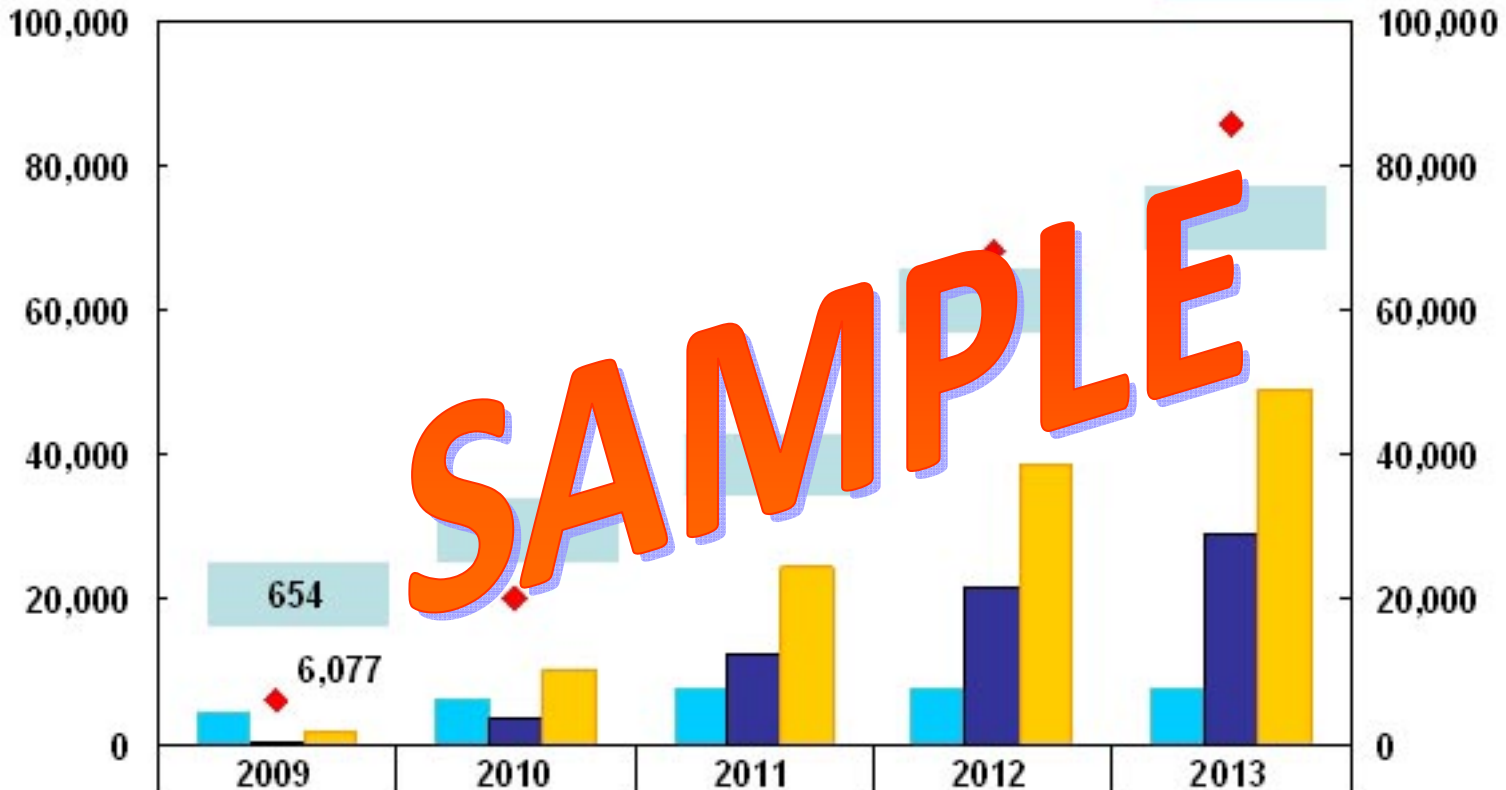
Reference: WitsView



## LED Backlight in Large LCD Application Forecast

Unit: Mpcs

MUS\$



■ NB	4,174
■ LCD Monitor	217
■ LCD TV	1,685
◆ Total	6,077

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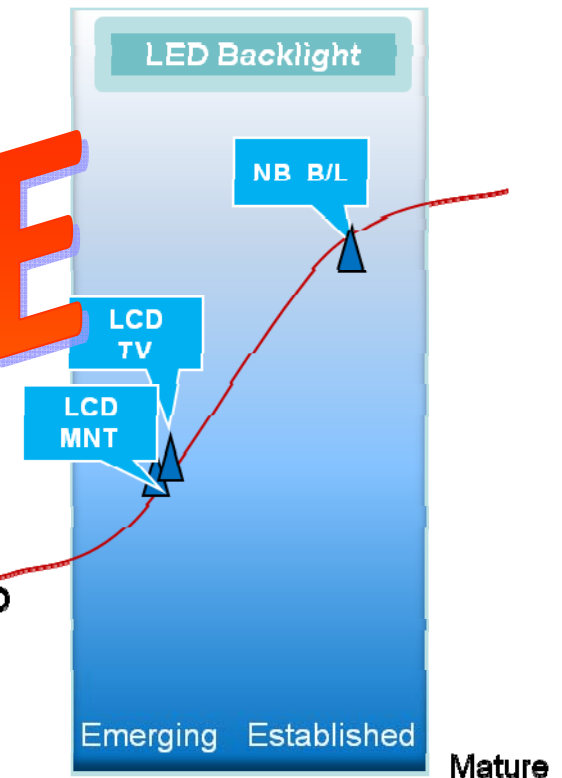




# Summary

- LED becomes the main stream of NB backlight, and will be saturated in coming 2 years. The steady to flat growth is expected, while cost pressure remain.
- Backlighting in LCD TV and LCD monitor will be the main driving forces for the market growth.
- LCD TV:
  - More solid pkgs and consolidated design for supply chain are expected to delivery better performance.
  - White LED solution, is remaining in the Short term; while RGB product with high color reproduction, high NTSC% is expected to realized in coming years.
- For LCD Monitor, “cost” to drive the market growth, and brightness improvement with stringent cost control to realized the business wins.

**SAMPLE**





## Investigation on Taiwan LED Capacity



## Market Overview

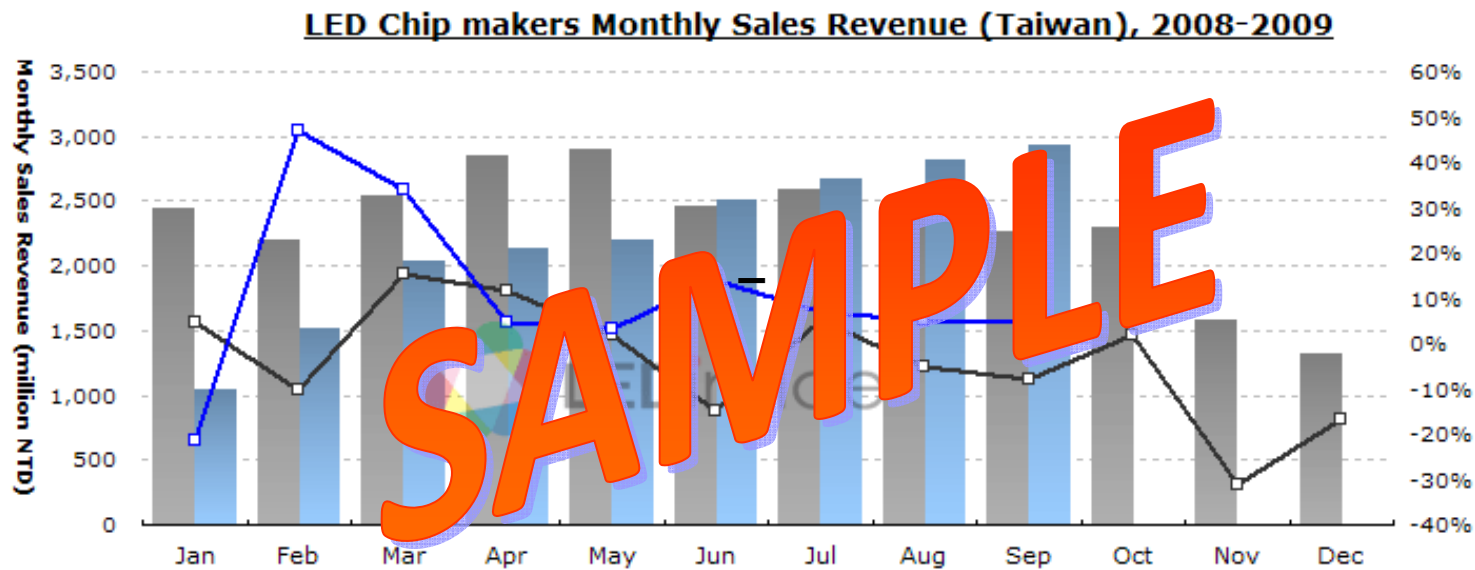
Based on LEDinside's observation of recent market dynamics, downstream packagers' revenue in September continued to grow; however, as Q4 marks the beginning of a traditionally slow season, packagers' order visibility was reduced by 1 to 2 weeks from the original 5 to 6 weeks.

Of all the orders, demand for small- to mid-size handset backlight is expected to slide as shipments of handset gradually weaken. Mobile handset vendors have decreased LED orders while the demand for large format displays is still strong, though its order visibility is also low. As for mid- to large-sized backlight, panel makers are adjusting their LED inventory levels in Q4, which will deter the revenue growth in downstream packagers.

Capacity utilization of upstream (In)GaN LED chipmakers is still fully-loaded, and revenue in Q4 is expected to see persistent growth as the new MOCVD equipment are installed by upstream chipmakers.



## LED Chip Makers Monthly Revenue



Taiwan chipmakers recorded total revenue of NT2.938 billion in September, a 4.6% growth MoM, and 30.1% YoY.



## LED Chip Makers Revenue Ranking

**Figure 1: Taiwan LED Chipmakers' Sales Revenue in September, 2009**

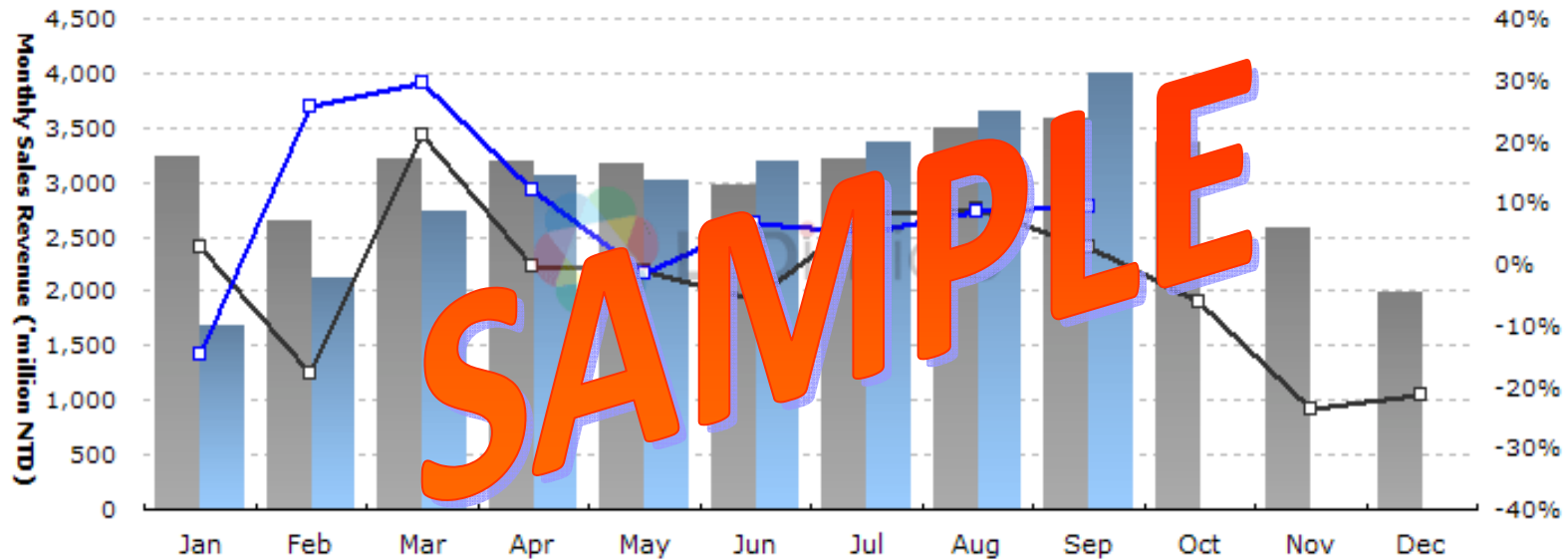
Unit : NTD(Mn)	Aug-09	Sep-09	MoM	YoY
Epistar	1,249	1,260	0.9%	36.6%
Opto Tech	484	506	4.7%	-0.1%
Tyntek	256	252	-1.5%	14.0%
Huga	244	278	14.0%	81.1%
FOREPI	224	242	7.7%	91.0%
Tekcore	199	224	15.3%	-2.1%
Genesis Photonics	79	128	16.2%	-34.0%
Arima Optoelectronic	30	100	28.9%	2211.8%
High Power Opto	3	51	-2.3%	109.8%
Uni-Light Touchtek	3	39	-7.6%	-28.0%
<b>Total</b>	<b>2,809</b>	<b>2,938</b>	<b>4.6%</b>	<b>30.1%</b>

Under the supply shortage in upstream chips, chipmakers that have the capacity to supply large quantities LEDs for backlight applications, such as Epistar, FOREPI, Huga Optotech, and Tekcore, continue to post high revenues in September.



## LED Package Makers Monthly Revenue

LED Package makers Monthly Sales Revenue (Taiwan), 2008-2009



Downstream LED packagers recorded total revenue of NT3.989 billion in September, (MoM +9.2%, YoY +11%) with output already surpassing the standard of the same period last year.





## LED Package Makers Revenue Ranking

**Figure 2: Taiwan LED Packagers' Sales Revenue in September, 2009**

Unit : NTD(Mn)	Aug-09	Sep-09	MoM	YoY
Everlight	1,117	1,171	4.8%	11.7%
Lite-On	929	975	5.0%	17.7%
Unity Opto	424	463	9.1%	15.5%
BRIGHT LED	433	495	14.2%	14.4%
Harvatek	262	307	17.5%	29.2%
Edison Opto	181	177	-1.3%	-1.5%
Light House Tech	166	166	0.0%	11.5%
Ledtech	79	90	13.5%	-3.0%
TAIWAN OASIS	51	66	8.6%	-20.7%
Others	1	3	117.3%	0.0%
<b>Total</b>	<b>3,654</b>	<b>3,989</b>	<b>9.2%</b>	<b>11.0%</b>

Downstream packagers' revenue in September continued to grow; however, as Q4 marks the beginning of a traditionally slow season, packagers' order visibility was reduced by 1 to 2 weeks from the original 5 to 6 weeks.



## LED Down Stream Application Demand

Application	Forecast trend in Nov.	Note
Mobile	↓	Mobile brand vendors have decreased LED orders while the demand from white brand handsets is still strong, though order flexibility is also low.
NB Backlight		For the large-size backlight, panel makers are adjusting their LED inventory levels in Q4, which will deter the revenue growth in downstream packagers.
TV Backlight	↑	Demand keeps in growing with increasing customers, and new productions are in authorized.
General Lighting	→	Chip shortage influences shipment for general lighting, but the demand is still strong.

**SAMPLE**



## Contact

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