

Why the need for a Global TV Test Procedure?



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Sharp Labs of America

People love large flat panel TVs

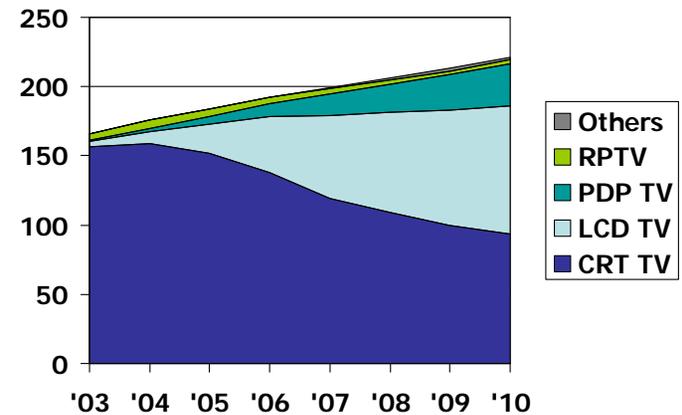


Demands Forecast of FPD TVs in 2006-2010 (million units)

	2003	2004	2005	2006	2007	2008	2009	2010	CAGR
CRT TV	156.3	159.2	152.1	138.2	119.5	109	99.7	93.3	-9.3%
LCD TV	3.9	8	20.7	40.2	59.5	72.8	83.4	92.8	35.0%
PDP TV	1.1	2.6	5.5	9.3	15.5	20.2	25.3	30.8	41.1%
RPTV	4.8	6.6	5.5	4.7	3.7	3.1	2.8	2.5	-14.6%
Others	-	-	-	0.1	0.6	1.2	1.9	2.1	-
Total	166.1	176.4	183.8	192.5	198.8	206.3	213.1	221.5	3.8%

Source: Displaybank, compiled by FPDdisplay.com, Feb 2006.

Demand Forecast of TVs by Technology

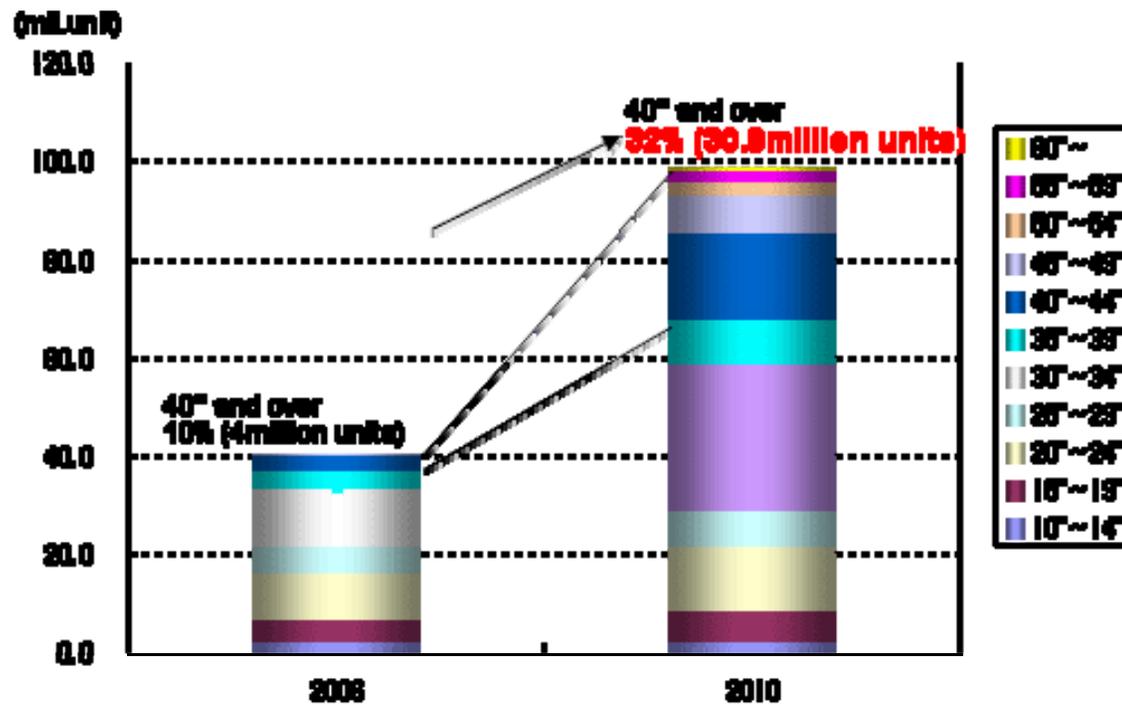


Displaybank, 2006 Forecast

People want bigger and bigger TVs



Global LCD Forecast by Size



Source: Displaybank

Nearly all of the growth in the LCTV market will be in at 30" and above segment.

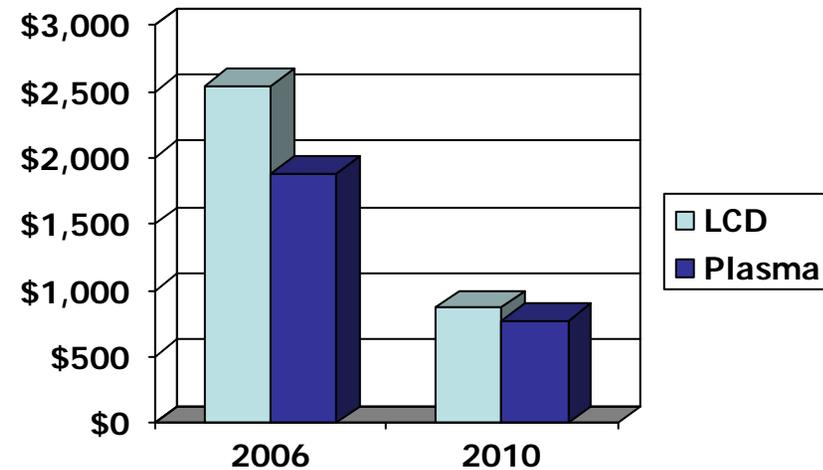
The 40" and above segment will have steep growth.

TV prices keep falling



- *Peter Kwon, president and chief executive of Korea-based Displaybank, projects retail prices of 42 in. LCD TVs to fall from an average of \$2,546 in 2006 to \$870 by 2010. Similar-size plasma TVs will drop from \$1,880 to \$775 over the same period, he added.*

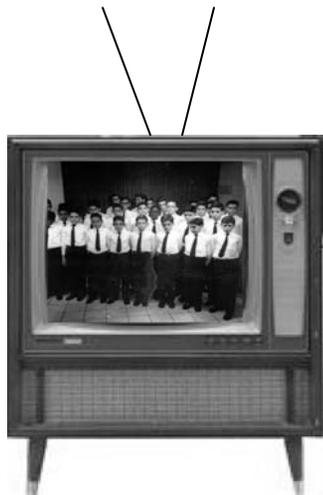
Average 42" TV Retail Price Forecast



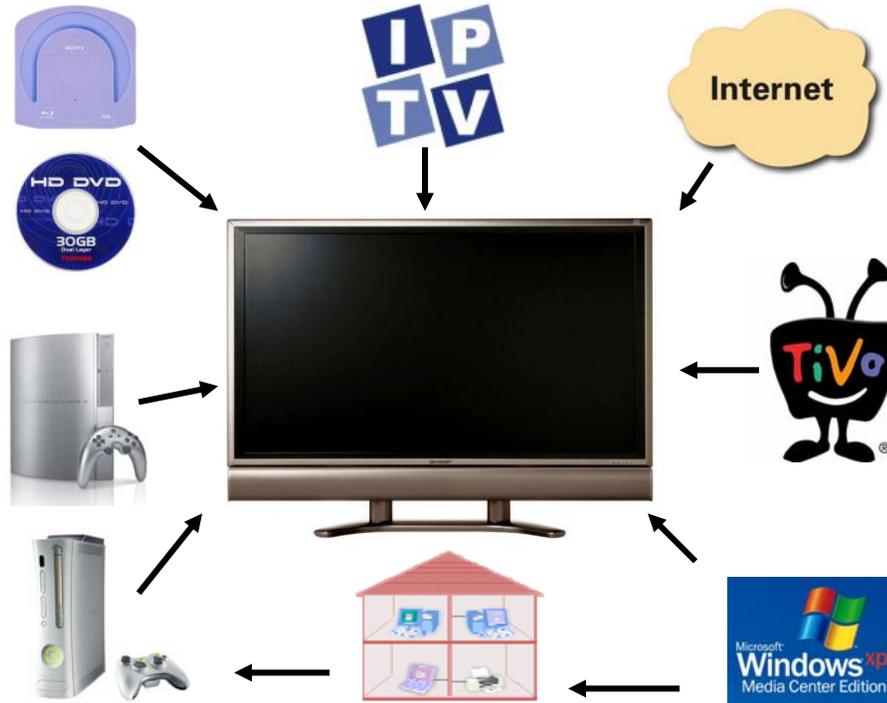
Source: EE Times, 5-Jun-2006

Consumer TV use is changing

Old Media



New Media



Enablers



Typical daily use: US: 5 hours; Japan: 4.5 hours; Europe: 4 hours (varies by country)

- **IF** two TVs have the same brightness (cd/cm^2)
 - And **IF** they have the same efficacy (lumens/watt)
 - The larger TV will draw more power, proportional to screen size

 - The flat panel market will grow
 - Set sizes will grow
 - People want bright TVs
 - People use their TVs more
- } = *increased power consumption*
- The key is improved efficiency (watts/in^2)
 - We need a measurement standard for TV efficiency

Why reduce energy consumption?

- Reduce environmental impact, including greenhouse gas emissions
- Reduce the need for new power plants
- Reduce resource consumption
- Reduce energy imports
- Reduce consumer costs

- Each manufacturer wants to beat the competition
 - Attractive design
 - Light weight

} = *no fans, no large heatsinks*

- Better pictures & sound

} = *advanced signal processing*

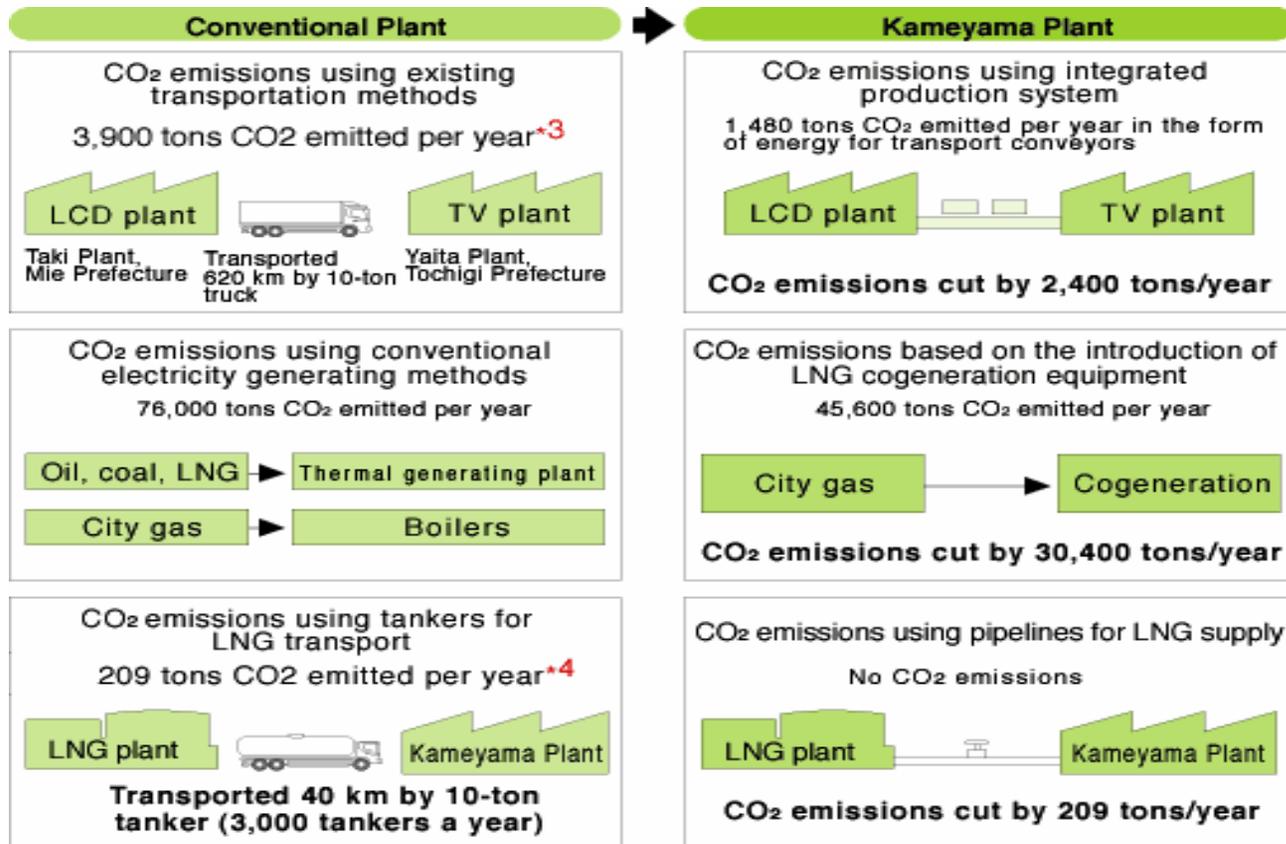
- Lower costs
- Trustworthy brand name
- Low operating costs

} = *smaller (cheaper) power supplies,
“green” corporate reputation
low power consumption rating*



Kameyama Plant (left: Plant No.1 right: Plant No.2)

Clean factories reduce CO₂ emissions



Effects of reducing CO₂ emissions at the Kameyama Plant compared to conventional systems

Sharp has at least 16 models of Eco-label TVs*

Newest models:

- Aquos LC-37GA9E – 37" LCD TV
- Aquos LC-32GA9E – 32" LCD TV

Available at UK retailers, Late June 2006

* Source: eco-label.com



The Eco-label on a television tells you

- *The product consumes less energy during use and standby*
- *It contains fewer substances that are dangerous for health and the environment*
- *The products can be taken back free of charge by the manufacturer after use*
- *It contains instructions for correct environmental use*
- *It is designed for greater durability and recyclability*

- Back of the set power ratings
 - Typically show maximum power
 - Are typically conservative
 - Vary from model to model, manufacturer to manufacturer
- Not useful for measuring real world power usage
- Not useful for comparison shopping



- Existing procedures
 - DOE method: developed for B&W TVs!
 - JEITA Draft Report: Developed for LCD-TVs & PDP-TVs; Japan centric (uses Japan broadcasting formats and metrics)
 - IEC 62087: Includes a variety of tests, but does not integrate them. Does not consider power saving features. Can be improved.

- IEC 100/1081/NP (new project proposal)
 - Initial draft based on best practices of JEITA and IEC 62087
 - We have strong industry, agency and IEC support
 - Working draft marked-up in Helsinki, June, 2006
 - I will present the details this afternoon