IEC TC100 TV Power Measurement Project Overview and Status

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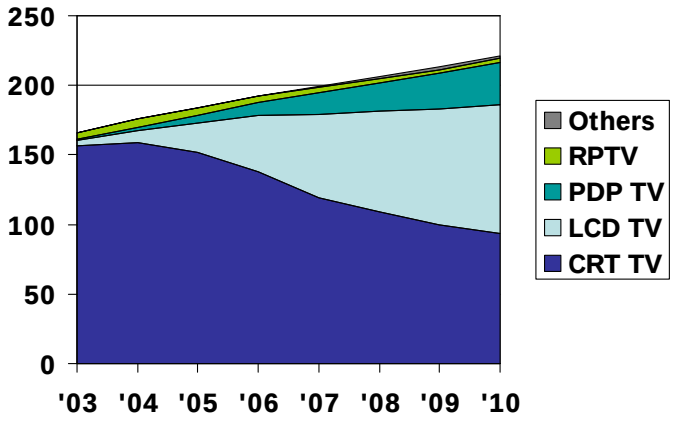
TV Trends - Demand

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 FPDisplay.com, Feb 2006.									

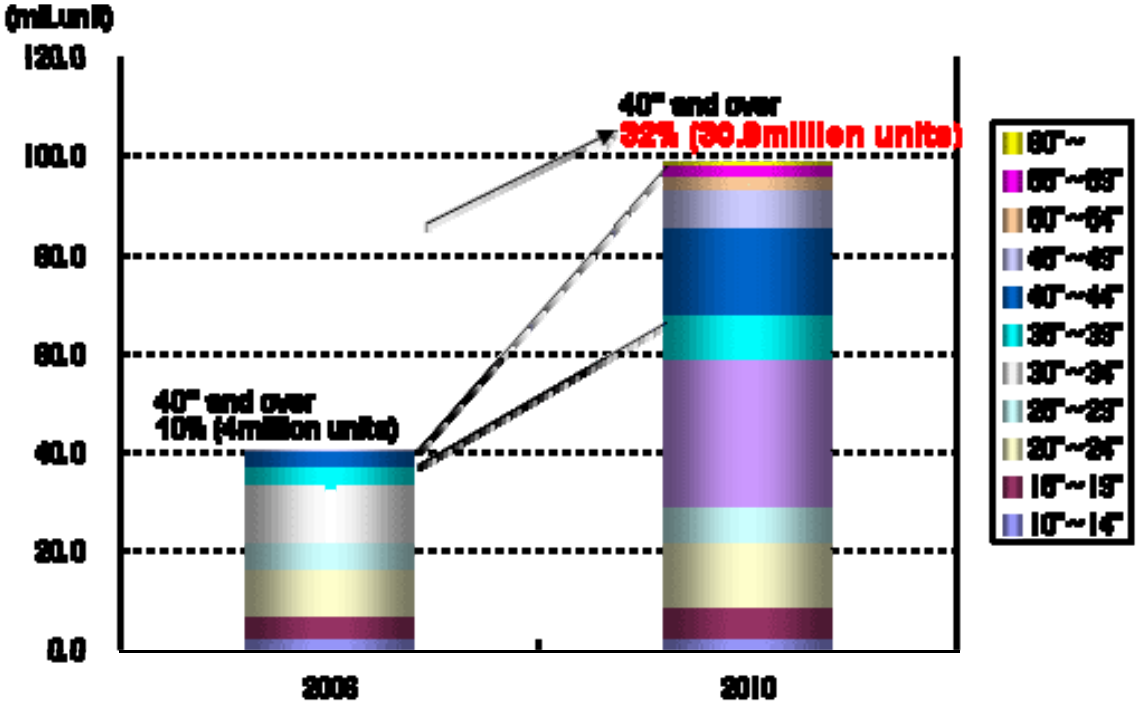
Demand Forecast of TVs by Technology



Displaybank, 2006 Forecast

TV Trends - Size

Global LCD Forecast by Size



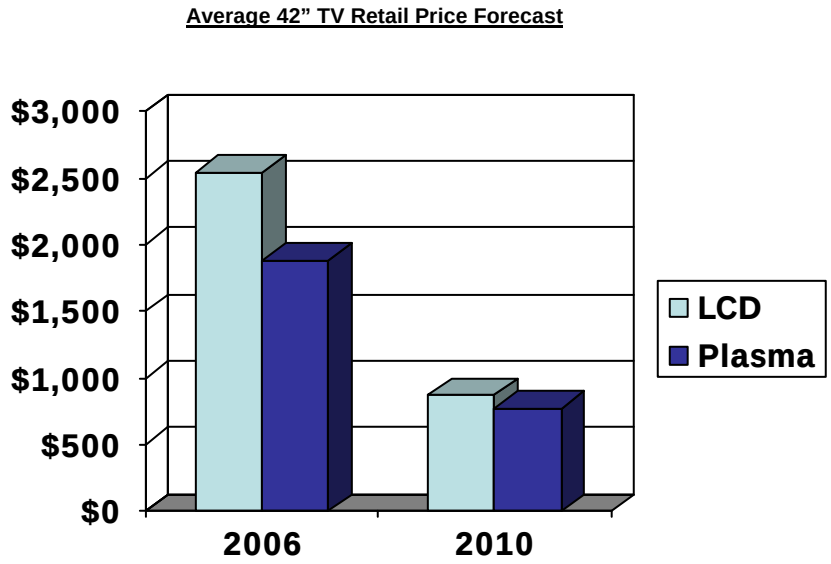
Source: Displaybank

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 Trends – Falling Prices

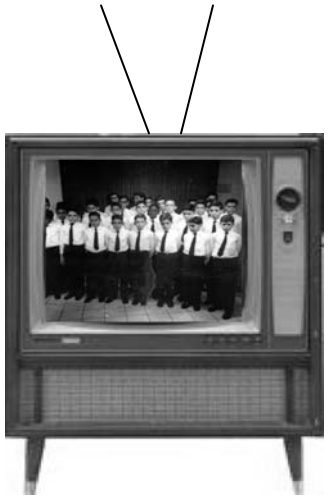
- *Peter Kwon, president and chief executive of Korea-based Displaybank, projects retail prices of 42 in. LCD TVs to fall from an average of $2,546 in 2006 to $870 by 2010. Similar-size plasma TVs will drop from $1,880 to $775 over the same period, he added.*



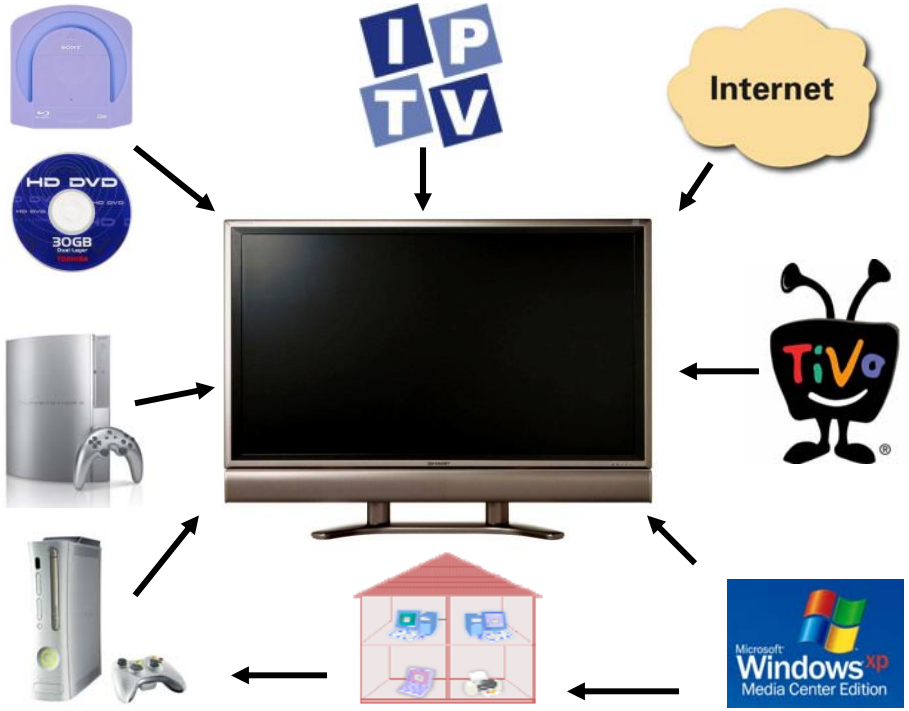
Source: EE Times, 5-Jun-2006

TV Trends - Applications

Old Media



New Media



Enablers

HDTV SUPPORT

dvi digital visual interface

HDMI

FireWire

dlna

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

The need for a TV Power Measurement Standard

- ***IF*** two TVs have the same brightness (cd/cm2)
  - 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)
  - It's easy to measure in^2
  - We need a measurement standard for TV power consumption – including "On Mode"

TV Power Measurement Standards

- 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

- IEC 62487 (approved project)
  - First meeting in Washington, DC, July 2006
  - Key decisions made; Working draft updated

What is the IEC?

- IEC is the International Electrotechnical Commission
- An international standards body
- First meeting: 26 June, 1906
- www.iec.ch
- IEC is a matrix of technical committees (TCs)/subcomittees (SCs) and national committees (NCs)
  - Technical committees organize and administer the projects
  - Voting is done by the national committees
  - Nations potentially have Technical Advisory Groups (TAGs) for the Technical committees. They advise the national committees on voting.
  - You may join a TAG, and could become a delegate at TC meetings

IEC TC100 TV Power Measurement Project (62487)

- IEC TC100 (Technical Committee 100) has taken the lead role through the NP (new project, or new work item proposal) process
- The project has been approved
- TC100's scope covers "Audio, video and multimedia systems and equipment "; we are one of the most prolific TCs
- TC108 (Safety) has joined the effort
- TC110 (Displays) is actively involved in the project
- Participants include industry, government agencies, non-profit organizations, academia and independent contributors
- Anybody may join

Project Goals

- The project includes the following goals:
  - To be technology and size neutral
  - To consider dual function products, such as TVs with computer monitor capabilities
  - To allow for fair and consistent comparison of products
  - To have international scope and application
  - To focus on out-of-the-wall power consumption (i.e., consumption from the power mains)
  - To include a rich range of content for the test image
  - To be an easy to use measurement technique
  - To have an intuitive set up (e.g., out of the box/default settings) and run in a reasonable amount of time (i.e., a few hours with the ability to extrapolate results).
  - Timely publication and promulgation: 2007.

Timeline

- June 2005: NRDC hosted a TV Energy workshop in San Francisco
- September 2005: The topic was proposed at the TC100 meeting in San Jose
- December 2005: Jon Fairhurst of Sharp volunteers as project leader
- January 2006: Developed the NP
- February 2005: NP proposed to the US TAG
- March 2005: NP passed 30 day TAG vote; Comments resolved
- April 2006: NP ballot issued in TC100; Initial draft delivered to TC100
- May 2006: Ad-hoc meeting held in Helsinki; Working draft revised.
- June 2006: Working draft presented to London TV Power Consumption workshop
- July 2006: Two day meeting held (18th & 19th) in Washington; Project approved.
- September 2006: Meeting planned in Berlin (27th & 28th). Goal: Working draft completed.
- IEC TC100 procedures move forward (comment periods and ballots)
- Formal publication

The Washington Meetings

- 28 attendees registered
- Our members presented ten detailed proposals on various topics related to the standard under development
- We reviewed the working draft item by item and created a marked-up draft in real time
- We focused our scope on “On Mode”
- We decided to develop two parts: one with fixed test signals, the other with moving content
- The moving content part will have three test loops
  - Low Average Signal Level (movies & dramas)
  - Mid Average Signal Level (sports & animations)
  - High Average Signal Level (web & video games)
- The weighting of low, medium and high test results will be decided locally
- We have an action plan (17 action items) to complete the work in Berlin, September 27/28