



CalPlug Workshop
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U.S. Pay TV Set-Top Boxes -
Energy Efficiency Update

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U.S. Pay TV Subscriber Trends:

DVR Households:

- 2013 – 55% (28%>1 TV)
- 2012 - 52%
- 2011 - 44%

Slowing!

WH DVR, VOD,
nDVR, OTT

“DVR features” still growing rapidly!

HDTV Households:

- 2013 77% (46% multi-HDTV)
- 2012 75%

Slowing!

Market Saturation

LCD sales flat

Plasma sales rapid decline

TV Everywhere:

- 21% use once per month
- Inside and outside of home

Increasing!

BUT little energy impact

Cable/Telco – IP delivery

Satellite – STB transcoding/IP delivery

U.S. Pay TV Industry Trends:

Multi-Channel Video Provider Subscribers	End of 2013	Net Adds in 2013
Cable	49,574,294	(1,734,521)
Satellite	34,310,000	70,000
Telco	10,722,000	1,460,000
Total Multi-Channel Video	94,606,294	(104,521)

Source: LRG 20014

Set-top Box Feature & Technology Trends:

Wireless Home Video Distribution

Gateway/WH DVR to Clients

“VWAP” or “VWAP” – Video Wireless Access Point

Wireless Thin Clients

Wireless “Smart TVs” with Virtual Clients (App)

New STB Technologies

4K/Ultra-HD, HEVC, Wide-Band Tuning, HDMI 2.0

SOCs - 28nm, Quad ARM processors, Quad Transcoders

DLNA CVP-2: premium content on consumer devices!

Applications on STBs:

Now - Weather, Social Media, Music, Sports, Photos (DLNA)

Coming – OTT Home Automation Home Security

New U.S. Pay-TV STB Products:

Comcast (with Time Warner?)

- Xfinity X1 WH DVR with RNG150 STB
- X1 Cloud DVR with Mobile Streaming
- Future - Xfinity XG5 Gateway with Xi3 Thin Clients

DIRECTV

- Genie WH DVR with Genie Mini, Wireless Genie Mini, Virtual Mini

ISH

- Hopper WH DVR with Joey, Wireless Joey, Virtual Joey

Verizon FIOS

- Quantum TV - VMS1100 WH DVR with IPC1100 Thin Client

AT&T U-verse

Proposed STB Energy Voluntary Agreement!

Industry and Energy Advocate participation

Inclusive governance structure

Broad scope of coverage – all STB products

Two tiers of near-term energy use reductions

- 90% STBs purchased after 1/1/2014 meet ESv3 levels
- 90% STBs purchased after 1/1/2017 meet VA Tier 2 levels

Flexibility to address new features

Annual field verification testing and audits

Public “Annual Report” – 1st report summer 2014

Public disclosure of product energy use

Voluntary Agreement Participants:

Top 6 US Cable Service Providers

- Comcast, Time Warner, Cox, Charter, Cablevision, Bright House

US Satellite Service Providers

- DISH Network, DIRECTV

Top 3 Telco Service Providers

- Verizon, AT&T, CenturyLink

Top 4 STB Manufacturers

- Arris, Cisco, EchoStar, PACE

US Energy Efficiency Advocacy Organizations

- NRDC, ACEEE (ASAP)

A Participants STB Energy Information:

Top 6 US Cable Providers

<http://energy.cablelabs.com/>

US Satellite Providers

http://www.directv.com/technology/hd_dvr_receiver?ACM=false

http://www.mydish.com/support/energy-efficiency?WT.svl=gsearch_results

US Telco Providers

<http://responsibility.verizon.com/sustainability/2013>

<http://promotions.centurylink.com/prism/existing/>

<http://www.att.com/shop/tv.html>

Go to “Equipment and Installation” > “U-verse Receivers” > “Receiver Energy Information”

Tier 2 energy goals comparison:

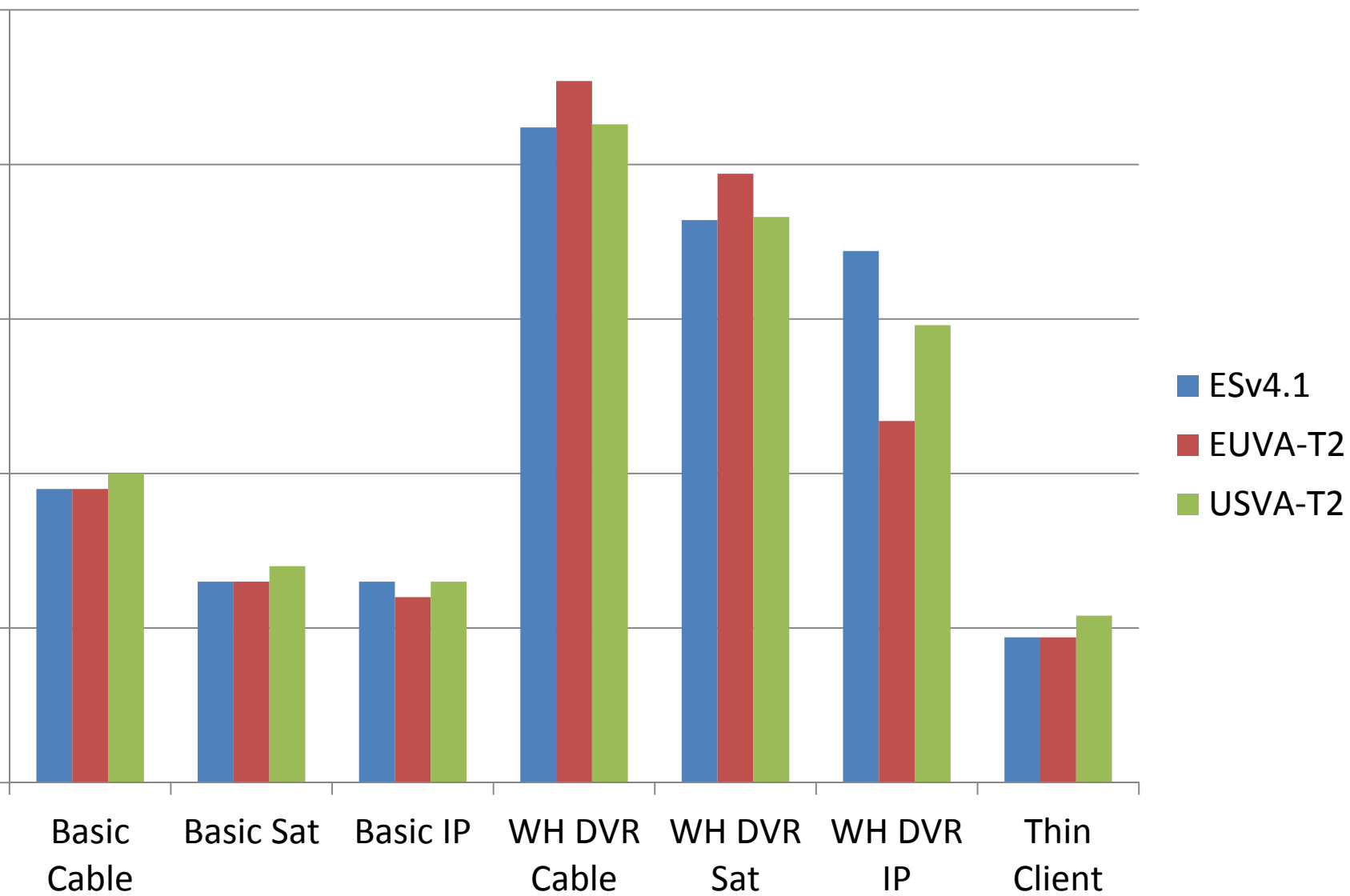
Top Box Type	Features	ESv3 (9/2011)	ESv4.1 (12/2014)	EUVA-T1 (7/2010)	EUVA-T2 (7/2013)	USVA-T1 (1/2014)	USVA-T2 (1/2017)
Cable	<u>US:</u> AVP,HD,CC,D2 <u>EU:</u> AVP, HD,RTP,D2	132	95	145	95	132	100
Cable Sat	<u>US:</u> AVP,HD <u>EU:</u> AVP,HD,RTP	107	65	145	65	107	70
IP	<u>US:</u> AVP,HD <u>EU:</u> AVP,HD,RTP	87	65	140	60	87	60
RF Cable Channels (CA)	<u>US:</u> AVP,HD,CC,D2,MS,DVR,MR <u>EU:</u> AVP,HD,RTP,D2,MD,RFx5,HNI,DVR	233	212	303	227	233	213
RF Sat Channels (CA)	<u>US:</u> AVP,HD,CC,D2,MS,DVR,MR <u>EU:</u> AVP,HD,RTP,MD,RFx5,HNI,DVR	208	182	303	197	208	183
IP Channels (CA)	<u>US:</u> AVP,HD,CC,D2,MS,DVR,MR <u>EU:</u> AVP,HD,RTP,MD,HNI,DVR	180	172	198	117	180	148
Client (CA)	<u>US:</u> AVP,HD,HNI <u>EU:</u> AVP,HD,HNI	82	47	80	47	82	54

allows 20/channel (T1) and 15/channel (T2) per additional RF channels.

allows 38 (T1) and 25 (T2) for multi-decode to support PIP capability present on most WH DVRs.

effective date is the date a new model STB is "placed into the market" by the manufacturer. A STB placed into the market before the effective date is not eligible for the energy goal. The service provider must report progress against the goal of > 80% compliance by the effective date.

ESv4.1 v. EUVA Tier 2 v. USVA Tier 2



Thank You