

ENERGY STAR for Set-top Boxes  
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Document	Line #	Topic	Comment	Response
Draft 2 Manufacturers	549-552	EAS Message	Suggest <b>delete the term "PSIP"</b> because it is a specific protocol and many other forms of data transfer are likely to be used by service providers in normal operation. <b>Replace, existing text on lines 549-552 with: "To clarify that when deployed, the set-top is constrained to the period of time necessary to perform maintenance activities and respond to EAS messages (required by FCC regulation). However, for purposes of manufacturer testing for ENERGY STAR qualification, this period of time is constrained to no longer than one hour in an eight hour period."</b>	Section 4(E) (lines 547 - 552) has been removed. The maximum allowable time for exiting Standby is intended to apply only in a case where a manufacturer claims an auto power down feature and uses equation 'b' for the base assessment in section 4 (C). Note: the term "Standby" has been replaced with "Sleep" in the final Draft version of the specification.
Draft 2 Manufacturers	568-571	EAS Message	To clarify that when deployed, the set-top is constrained to the period of time necessary to perform maintenance activities and respond to EAS messages (required by FCC regulation). However, for purposes of manufacturer testing for ENERGY STAR qualification, this period of time is constrained to no longer than two hours in a twenty-four (24) hour period. Therefore, <b>replace existing text on Lines 568-571 with: "ENERGY STAR qualified set-top boxes may exit automatically-initiated Standby mode in the event of an EAS message or for no longer than the time required to scan for program and system information, private date, or any other maintenance activity. For purposes of testing for ENERGY STAR qualification, the set-top may exit the automatically-initiated Standby mode for no longer than two hours in a twenty-four (24) hour period that the device would otherwise remain in Standby mode."</b>	The maximum allowable time for exiting Standby is intended to apply only in a case where a manufacturer claims an auto power down feature and uses equation 'b' for the base assessment in section 4 (C). The requirement that a STB not exceed exiting the standby mode for more two hours in a twenty-four hour period is included to ensure that the energy savings expected from the auto power down feature are not defeated. If more than two hours are required, then as an alternative the STB can qualify for ENERGY STAR using equation 'a' in Section 4 (C) assuming the STB meets the annual energy allowance criterion. Note: the term "Standby" has been replaced with "Sleep" in the final Draft version of the specification.
Draft 2 Manufacturers	595	Effective Dates	Maintain consistent effective dates and change the date to July 1, 2009.	New effective dates have been proposed in the Draft 3 specifications. Based on stakeholder feedback, EPA believes that the newly proposed effective date of December 15, 2008 is achievable.

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Draft 2 Manufacturers	588-592	Effective Dates	We believe this to be a more realistic schedule given the time needed to manufacture and test set-top hardware/software meeting the new ENERGY STAR requirements. This assumes that a final specification is available in January 2008 and that the Tier 2 requirements are removed. <b>Replace existing text on Lines 588-592 with, "The date the manufacturers may begin to qualify products as ENERGY STAR under this Version 2.0 specification will be defined as the effective date of the agreement. The ENERGY STAR specification for STBs (Version 2.0) is effective July 1, 2009. Any previous executed agreement on the subject of ENERGY STAR qualified set-top boxes terminated effective February 2, 2005."</b>	New effective dates have been proposed in the Draft 3 specifications. Based on stakeholder feedback, EPA believes that the newly proposed effective date of December 15, 2008 is achievable.
Draft 2 Manufacturers	600-602	Effective Dates	Delete these lines as it would be premature for EPA to establish Tier 2 at this time.	EPA believes establishing criteria for Tier 2 is important to provide a target for energy savings within the next few years. EPA will review these proposed levels with stakeholder engagement well in advance of the Tier 2 effective date to ensure they remain appropriate. Further, recognizing that there is no absolute guarantee that products will be developed that meet the criteria within the timeframe specified, EPA is not setting purchase and deployment criteria for Tier 2 products for service providers at this time.
Draft 2 Manufacturers	613-614	Specification Revisions Process	Change language to "In keeping with current policy, revisions, if any, to the specification will be discussed with stakeholders in advance of those revisions" to clarify change management process revisions	EPA has retained its standard language for this section in Draft 3.
Draft 2 Manufacturers	391	Table 1: Annual Energy Allowance	Change Annual Energy Allowance to 92 kWh/year because the annual energy allowance for Tier 1 does not appear to take into account the kWh/year annual energy allowance needed for the CableCARD - a component required by FCC regulations.	EPA agrees that given FCC requirements, CableCARD will require added energy consumption and therefore, has placed an allowance in the Tier 1 specification. EPA supports efforts to replace this technology with a more efficient technology as the occasion arises.

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Draft 2 Manufacturers	391 & 410	Table 1: Annual Energy Allowance and Table 2: Annual Energy Allowances	Tier 2 Annual Energy Allowances should be deleted because set-top box technology and features will change dramatically over the next several years. Therefore, we believe it would be premature for the EPA to assign Tier 2 values at this time. EPA and stakeholders should instead periodically re-examine set-top box annual energy allowances and adjust accordingly.	EPA believes establishing criteria for Tier 2 is important to provide a target for energy savings within the next few years. EPA will review these proposed levels with stakeholder engagement well in advance of the Tier 2 effective date to ensure they remain appropriate. Further, recognizing that there is no absolute guarantee that products will be developed that meet the criteria within the timeframe specified, EPA is not setting purchase and deployment criteria for Tier 2 products for service providers at this time.
Draft 2 Manufacturers	410	Table 2: Base DOCSIS	Add "Base DOCSIS" to Additional Functionalities and assign a value of 35 kWh/year under the current Tier 1 column to account for the energy contribution of a DOCSIS modem.	EPA believes that at this time, it is not appropriate to provide an adder for a particular technology, with the exception of CableCARD.
Draft 2 Manufacturers	410	Table 2: Home Network Interface	Add "Home Network Interface" after DVR and assign a value of 35 kWh/year under the current Tier 1 column. Add a definition for Home Network Interface under Additional Functionalities (text TBD). These revisions are to account for the energy contribution of a variety of home network interfaces used in set-top boxes today.	EPA agrees that some allowance for networking is needed. Draft 3 includes both a standalone allowance as well as a gateway allowance.
Draft 2 Manufacturers	410	Table 3: DOCSIS Transmitter	Add "DOCSIS Transmitter" to Additional Functionalities and assign a value of 35 kWh/year under the current Tier 1 column to account for the additional energy necessary for each additional DOCSIS transmitter used to support DOCSIS channel bonding.	EPA believes that at this time, it is not appropriate to provide an adder for a particular technology, with the exception of CableCARD.
Draft 2 Manufacturers	410	Table 3: DOCSIS Tuner	Add "DOCSIS Tuner" to Additional Functionalities and assign a value of 26 kWh/year under the current Tier 1 column to account for the additional energy necessary for each additional DOCSIS tuner used to support DOCSIS channel bonding.	EPA believes that at this time, it is not appropriate to provide an adder for a particular technology, with the exception of CableCARD.
Draft 2 Manufacturers	223	Terminology	Remove "POD" from: CableCARD, POD and Downloadable Conditional Access System (DCAS) are examples of this technology.	This change is reflected in Draft 3.

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Draft 2 Manufacturers	245	Terminology	To clarify that DOCSIS modems may be considered additional tuners <b>replace existing text on Line 245 with, "Out-Of-Band tuners built in compliance with standards ANSI/SCTE 55-1 2002 and ANSI/SCTE 55-2 2002 and other similar types of technologies are not considered additional tuners for the purposes of this specification."</b>	This change is reflected in Draft 3.
Draft 2 Manufacturers	251	Terminology	To clarify that advanced video processing is not limited to "MPEG-4" <b>replace existing text on Line 251 with: "Advanced Video Processing: Advanced methods for video encoding, transcoding and decoding. Examples include, but are not limited to, H.264/MPEG 4 and SMPTE 421M."</b>	This change is reflected in Draft 3.
Draft 2 Manufacturers	127-128	Terminology	To protect the confidentiality of manufacturers and the service providers participating in the program <b>replace existing text on Lines 127-128 with, "Any information used will be masked and aggregated by the EPA and will not reveal information specific to the Partner, its customers, or its specific industry segment."</b>	EPA has retained its standard language for this section in Draft 3.
Draft 2 Manufacturers	226-227	Terminology	To clarify that DOCSIS modems may be considered additional tuners <b>replace existing text on Lines 226-227 with, "[DOCSIS]: An international suite of standards that define interface requirements for cable modems involved in high-speed data and video/audio content distribution over cable television systems."</b>	This change is reflected in Draft 3.
Draft 2 Manufacturers	268-269	Terminology	To clarify cable OOB tuner definition <b>replace existing text on Lines 268-269 with, "Tuners compliant with standards ANSI/SCTE 55-1 2002 and ANSI/SCTE 55-2 2002 and other similar types of technologies used to gain access to data channels outside of the audio/video source signal. These may facilitate two-way communication and allow the box to..."</b>	This change is reflected in Draft 3.
Draft 2 Manufacturers	N/A	Terminology	Replace the term STB with "set-top box" throughout document	EPA has continued to use the abbreviation STB throughout the document for brevity.
Draft 2 Manufacturers	Line 241	Additional Functions	Additional Functionalities Add, "DOCSIS Tuner/Transmitter: Additional tuner(s) and transmitter(s) to support the DOCSIS (definition G) channel bonding capabilities. "	EPA believes that at this time, it is not appropriate to provide an adder for a particular technology, with the exception of CableCARD.

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Draft 2 Manufacturers	Line 241	Additional Functions	Additional Functionalities Add, "Home Networking: Technologies that provide a bi-direction data channel within the home that allow STBs to interact with one another, communicate with the Service Provider, and interact with other devices within the consumer's home. Home Networking includes but is not limited to Multimedia Over Coax Alliance (MoCA), WiFi, Home Plug, IEEE 802.3u, IEEE 802.3ab, IEEE 802.11n and IEEE 1394. "	This change is reflected in Draft 3.
Draft 2 Manufacturers	Table 1	Effective Dates	Tier 2 should be removed and the values should be agreed on at some future date based on the evolution of STBs supporting the Tier 1 program and the changes in technology. Motorola is not able to provide any guidance on Tier 2 values for products that we have yet to even start to plan to build.	EPA believes establishing criteria for Tier 2 is important to provide a target for energy savings within the next few years. EPA will review these proposed levels with stakeholder engagement well in advance of the Tier 2 effective date to ensure they remain appropriate. Further, recognizing that there is no absolute guarantee that products will be developed that meet the criteria within the timeframe specified, EPA is not setting purchase and deployment criteria for Tier 2 products for service providers at this time.

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Draft 2 Manufacturers	Line 82	Labeling	<p>On the product via electronic notification meets the following requirements:</p> <ul style="list-style-type: none"> <li>- If the manufacturer provided firmware/software renders the Energy Star mark, then the ENERGY STAR mark must appear in cyan, black, or white (as described in "The ENERGY STAR Identity Guidelines");</li> <li>- If the manufacturer provided firmware/software renders the Energy Star mark, then the ENERGY STAR mark must be at least 10% of the screen by area, may not be smaller than 76 pixels x 78 pixels, and must be legible;</li> <li>- If the manufacturer provided firmware/software renders the Energy Star mark, then the ENERGY STAR mark must appear for a duration not less than five seconds at power up and briefly upon power down; and</li> <li>- If the manufacturer provided firmware/software renders the Energy Star mark, then the ENERGY STAR mark must be displayed as part of the auto power down notification.</li> <li>- If the manufacturer provided firmware/software does not render the En</li> </ul>	The Draft 3 specification takes this suggestion into account, and attempts to provide additional flexibility as well.
Draft 2 Manufacturers	Line 549	Terminology	<p>Manufacturers have no control over the period of time it takes to acquire guide data. Therefore, <del>delete.</del> <b>"In order to qualify for ENERGY STAR, STBs may exit the Standby mode for no longer than one hour in an eight hour period that the device would otherwise remain in Standby mode. Manufacturers have no control over the period of time it takes to acquire guide data."</b></p>	Section 4(E) (lines 547 - 552) has been removed. The maximum allowable time for exiting Standby is intended to apply only in a case where a manufacturer claims an auto power down feature and uses equation 'b' for the base assessment in section 4 (C). Note: the term "Standby" has been replaced with "Sleep" in the final Draft version of the specification.

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Draft 2 Manufacturers	Line 560	Terminology	<p>Sometimes the initial configuration is the only most people will ever have a chance to make a change. People still have no clue how to program VCRs. Having them understand how to disable auto power down via navigating various menus may be too complex and daunting for some. This also impedes innovation in that a STB vendor may have a very elaborate set up process that is well received by consumers.</p> <p><b>Delete, "... shall not be capable of being altered during the initial user set-up process and..."</b></p>	<p>This line has been deleted in Draft 3. The Service Provider version of the Draft was also edited to make a more general requirement for service provider to (1) ensure STB as deployed meets ENERGY STAR requirements (including auto-sleep if needed), and (2) inform subscriber of other possible energy savings opportunities that are available. EPA recognizes that in many, if not the majority of, cases the STB will be configured to meet a subscriber's needs at the time of installation of the STB by an installer working for the service provider.</p>
Draft 2 Manufacturers	N/A	Definition for IPTV set-top boxes	<p>An IP set-top is a television set-top converter which has its Audio/Video services delivered via Internet Protocol (TCP/IP) transport.</p> <p>i. Various delivery networks may be used to deliver the IP data (Ethernet, HPNA, MoCA, xDSL, Fiber, 802.11, Powerline Carrier/HomePLUG AV, DOCSIS, etc)</p> <p>ii. Various other interfaces can exist on the IP STB for external device connectivity</p> <p>Hybrid versions of an IP Set-top can also include tuners which facilitate A/V service delivery via QAM/DAVIC transport.</p> <p>i. In this case the Hybrid IP set-top can process both IP delivered content and HFC QAM/DAVIC delivered content</p>	<p>Thank you for this information.</p>
Draft 2 Manufacturers	N/A	Table 1 : Additional Power Requirements	<p>Since the majority of our set-tops shipping today require the use of a <u>CableCARD</u> to even function, an additional power requirement needs to be added to the allowance in Table 1 for the Cable category.</p>	<p>EPA agrees that given FCC requirements, CableCARD will require added energy consumption and therefore, has placed an allowance in the Tier 1 specification. EPA supports efforts to replace this technology with a more efficient technology as the occasion arises.</p>

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Draft 2 Manufacturers	N/A	Table 2: Additional Functions	a) Add additional allowances for DOCSIS functionality, with the ability to allow for future growth where channel bonding (utilizing multiple tuners) will be a capability in the set-top. We recommend that there be an allowance of 35 kWh/yr per DOCSIS tuner. b) Add additional allowance for "home networking" capability in the set-top. We recommend that there be an allowance of 39 kWh/yr for home networking.	EPA agrees that given FCC requirements, CableCARD will require added energy consumption and therefore, has placed an allowance in the Tier 1 specification. EPA supports efforts to replace this technology with a more efficient technology as the occasion arises.
Draft 2 Manufacturers	N/A	Tier 2 Annual Energy Allowances	We strongly believe that the draft target values and timing of the Tier 2 Annual Energy Allowances are not realistic at this time. While we agree that progress on energy efficiency can be made in the near future and we are working towards making our products more energy efficient, we also believe that the development, integration, system testing, and real world beta testing required to achieve significant changes in energy usage cannot be enacted in the timeframe or in the manner suggested in the Draft Tier 2 requirements. Further discussion should take place regarding the Tier 2 timing and values.	EPA believes establishing criteria for Tier 2 is important to provide a target for energy savings within the next few years. EPA will review these proposed levels with stakeholder engagement well in advance of the Tier 2 effective date to ensure they remain appropriate. Further, recognizing that there is no absolute guarantee that products will be developed that meet the criteria within the timeframe specified, EPA is not setting purchase and deployment criteria for Tier 2 products for service providers at this time.
Draft 2 Manufacturers	236	Advanced Video Processing	Item I Additional Functionalities - mention of Advanced Video Processing , believe this is supposed to be Advanced Video Codecs	This change is reflected in Draft 3.
Draft 2 Manufacturers	251	Advanced Video Processing	Advanced Video Processing is typically defined as deblocking, deinterlacing, scaling, deringing, etc. I think Advanced Video Codec is what is being described in the definition and it should include VC-1, H264. MPEG4 does not indicate what profile.	This change is reflected in Draft 3.
Draft 2 Manufacturers	410	Advanced Video Processing	Can the following allowances also be considered: Advanced video codecs, Advanced video post processing, 3D graphics, DRAM, High end application processor, DOCSIS, OOB	EPA believes that at this time, it is not appropriate to provide an adder for a particular technology, with the exception of CableCARD.
Draft 2 Manufacturers	472	Annual Energy Equation	Under the annual energy equation with no auto power down, does the 14 hours and 10 hours always stay fixed with these numbers or does it change depending on the usage model?	The values do not change. For simplicity, only one usage model has been employed.
Draft 2 Manufacturers	217	Cable Card	Which version of cable card is this?	Any allowance for CableCARD is intended to cover both versions in existence.



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Draft 2 Manufacturers	410	Cable Card	Should there also be an additional allowance for Cable Card 1.0 and 2.0 and DOCSIS?	EPA believes that at this time, it is not appropriate to provide an adder for a particular technology, with the exception of CableCARD.
Draft 2 Manufacturers	251	Definition for Hybrid IPSTB	Should there be a definition of Hybrid IPSTB where this is an IPSTB with a tuner?	For clarification, and to ensure that this type of product is adequately addressed, IP has been added in the Additional Functionalities section. EPA believes with this edit, all hybrid configurations will be accounted for.
Draft 2 Manufacturers	547	Electronic Program Guide and System Update Requirements	The section on Electronic Program Guide and System Update Requirements is a bit confusing, since we would expect a box in standby mode to continue to read data from the OOB (or DSG) channel all the time. It appears that a box that meets the power allowances based on the equations in the above sections can still fail to be ENERGY STAR compliant if they spend more than 3 hours/day reading data from OOB. In today's usages, some data is read continuously and some is read on a daily schedule.	Section 4(E) (lines 547 - 552) has been removed. The maximum allowable time for exiting Standby is intended to apply only in a case where a manufacturer claims an auto power down feature and uses equation 'b' for the base assessment in section 4 (C). Note: the term "Standby" has been replaced with "Sleep" in the final Draft version of the specification.
Draft 2 Manufacturers	412	High Definition Allowance	Once the IPSTB power is added will the High Definition allowance also include it? We are wondering why the note about the HD allowance only applicable to Cable and Satellite STBs please elaborate?	This change is reflected in Draft 3.
Draft 2 Manufacturers	515	Additional Tuner Usage	The "Additional Tuner Usage" category in <a href="#">Table 3: Duty Cycle</a> needs an example or explanation. Is this the power consumption when a PIP (picture-in-picture) function is turned on? Or is this an estimate of the time the user would be using an additional tuner to watch TV while recording on another channel? Additional tuner usage may not relate to playback or record hours.	EPA placed clarifying language in Draft 3.

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Draft 2 Manufacturers	N/A	Direct Measurement of KWh Usage	ENERGY STAR should investigate the possibility of a direct measurement of the KWh usage over a 24 hour test cycle for the initial Version 2 specification. ENERGY STAR could specify the measurement device accuracy (or a specific KWh device) and then just specify the number of hours an STB must run in each mode of operation; watching TV, recording, playback and standby. This could be done for the most common STB configurations; base, w/DVR, w/DVD, etc. and potentially could be simpler for manufacturers to understand and implement. The resulting 24 hour KWh usage could then be used to create the Annual TEC.	EPA agrees that a direct measurement approach should be investigated. EPA believes the best forum for this investigation may be through the IEC or other international organizations that are interested in establishing and promoting test procedures for STBs.
Draft 2 Manufacturers	N/A	Instructions for multiple TV STBs	Include specific instructions in the document for multiple TV STBs. The industry is quickly moving in this direction (whole home DVRs, etc.) and these type of products need to be included as part of the ENERGY STAR specification.	This change is reflected in Draft 3.
Draft 2 Manufacturers	91-95	Labeling	It should be decided if a manufacturer is allowed to add the ENERGY STAR label to a STB if it is being sold to a non-ENERGY STAR service provider. The manufacturer has little control over how the service provider might use the product once it is deployed.	Based on stakeholder feedback, electronic and physical labeling requirements have been edited in Draft 3 with the goal of providing flexibility to service providers and manufacturers and enhancing consumer awareness opportunities.
Draft 2 Manufacturers	410	OTA Tuner	The "Additional Tuners – OTA" Tier 1 and Tier 2 allowances are too small. The OTA tuner allowance should assume new STBs will have an ATSC tuner implementation (Perhaps the TIAX data is a measure off older NTSC tuners that already exist in the field). We recommend that an OTA tuner have the same "Annual Energy Allowance" as an additional satellite or cable tuner.	The rationale for a lower energy allowance for additional OTA tuners under Tier 1 is that OTA tuners can be placed in a low power sleep mode when not in use. Under Tier 2, the allowance for OTA and other types of tuners is the same.
Draft 2 Manufacturers	521	Terminology	The "W's" should be "P's" in this line to agree with line 510.	Draft 3 reflects this change.
Draft 2 Manufacturers	204-206	Terminology	Add the following (or similar) text to the definition; "An IP STB does not require a channel tuner(s) to receive television signals". The definition needs to distinguish between a pure IPTV solution and a "hybrid" solution.	EPA has retained its standard language for this section in Draft 3. The definition has been standardized with other specifications. Draft 3 does include language focused on hybridized boxes and feels that is language is sufficient at this time.

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Draft 2 Manufacturers	469-470	Terminology	PTV, PStandby, and PAuto PD need to be defined in more detail somewhere.	These variables are defined explicitly in the test procedure.
Draft 2 Manufacturers	530-531	Terminology	The sentence should end after the close parenthesis. Only the measured, test based, power should be included.	This section has been edited in Draft 3 for clarity.
Draft 2 Manufacturers	N/A	Cable Signal	Cable does not have signal degradation issues that are related to transmitting TV signals over 22,000 miles through different weather conditions. Cable headends are local so the signal only needs to travel a relatively short distance. Signal quality at cable households can be maintained by adding amplifiers where needed. Therefore cable can control the signal level at the receiving stb.	The Base Functionality Annual Energy Allowance for satellite will remain greater than for cable.
Draft 2 Manufacturers	N/A	Client Server Systems	All service providers indicated that future deployments will include client server products by 2010. There will be opportunities to greatly reduce power consumption. A household that currently is being served by 4 DVRs can be served by 1 DVR and 3 client devices, which will eliminate 3 hard drives. There must be some consideration of this architecture.	EPA has added allowances that allow for gateway boxes and thin clients in Draft 3.
Draft 2 Manufacturers	N/A	Client Server Systems	In order for client server systems to reduce power by removing the need for multiple hard drives, network capability will need to be added. Networking technologies such as Ethernet, Moca, HPNA, WiFi, etc. will require additional power to operate. Note that networking technologies were never designed to operate in low power modes. While it may be possible to add power management in future generations of product, standards that require the agreement of many stakeholders will take time to define and implement.	EPA has added allowances that allow for gateway boxes and thin clients in Draft 3.
Draft 2 Manufacturers	N/A	Client Server Systems	The net power savings in client server systems should include allowances for networking.	EPA has added allowances that allow for gateway boxes and thin clients in Draft 3.

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Draft 2 Manufacturers	N/A	Consumer Choice	Consumers should be able to make an informed decision on how they want their products to operate at initial setup. Forcing consumers to find their way back into a configuration screen after initial setup will confuse them. This will result in increased calls to customer service. Even if only a small percentage of millions of customers call, that is still thousands of phone calls.	The Service Provider version of Draft 3 has been edited to make a more general requirement for Partner to (1) ensure STB as deployed meets ENERGY STAR requirements, and (2) inform subscriber of other possible energy savings opportunities that are available. EPA recognizes that in many, if not the majority of, cases the STB will be configured to meet a subscriber's needs at the time of installation of the STB by an installer working for the service provider.
Draft 2 Manufacturers	N/A	Consumer Choice	DIRECTV products used in commercial applications such as bars, MDUs, and the hospitality industry are identical to the products used by consumers. Not being able to change system settings at initial setup will increase the cost and complexity of installing systems. For example, a company may install 100 or more stbs in a hotel head end to provide video service throughout the hotel. If the installers cannot configure stb operation at initial setup, then they will have to spend extra time to go back into the menus.	The Service Provider version of Draft 3 has been edited to make a more general requirement for Partner to (1) ensure STB as deployed meets ENERGY STAR requirements, and (2) inform subscriber of other possible energy savings opportunities that are available. EPA recognizes that in many, if not the majority of, cases the STB will be configured to meet a subscriber's needs at the time of installation of the STB by an installer working for the service provider.
Draft 2 Manufacturers	N/A	Duty Cycle	Duty cycles should be designed to offer service providers and hardware manufacturers the maximum amount of flexibility to innovate creative solutions to save power. A server device is likely to have a different duty cycle than a stand alone DVR due to the requests that multiple clients will make.	EPA developed a duty cycle that could be used across products covered by the STB specification for comparison purposes. It would be difficult to develop a duty cycle specifically for server devices in the time frame of this specification development, due to uncertainty regarding the way in which these devices may function.

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Draft 2 Manufacturers	N/A	Legacy Products	Service providers may be able to reduce the power consumption of legacy products. Any software changes to legacy products will require considerable commitment of time and money to design, test, and deploy. There should be some incentives for service providers to do so. If reducing TEC is the goal, it should not matter if the power is saved on legacy products or in new products. Saving power on legacy products may result in greater power savings in a shorter amount of time if the installed base of legacy products is greater than the installation rate of new products.	The specification has been revised to allow service providers to count legacy STBs - that have been retrofitted and afterwards meet the ENERGY STAR criteria - toward the % requirement for purchase and deployment. Service providers will need to test an appropriate sample of the retrofitted STBs to demonstrate they meet ENERGY STAR requirements.
Draft 2 Manufacturers	N/A	Lowering TEC	If the goal is lowering TEC, it should not matter how a service provider lowers TEC. Service providers should be left to innovate solutions to lowering TEC without hard rules on system operations made by parties who are not experts in those systems. Any requirements for how long a STB can be in various modes should be removed.	Section 4(E) (lines 547 - 552) has been removed. The maximum allowable time for exiting Standby is intended to apply only in a case where a manufacturer claims an auto power down feature and uses equation 'b' for the base assessment in section 4 (C). Note: the term "Standby" has been replaced with "Sleep" in the final Draft version of the specification.
Draft 2 Manufacturers	N/A	Requirements for EPG and system shutdown	Satellite systems are one way systems. There is no 2 way communication as in cable and telco systems. A one way STB has no way of requesting data. The STB must always be listening for EPG and system info. EPA's analysis fails to take this into account. Satellite systems must keep the LNBS powered to receive data. Redesigning CA and EPG systems would be very risky, costly, take a long time, reduce the quality of customer experience, and increase customer service calls.	EPA proposed using the Total Energy Consumption (TEC) approach to provide flexibility to manufacturers in meeting ENERGY STAR criteria. The specification has been revised to make it clear there are no requirements for system shutdown. STBS that incorporate auto-sleep functionality may use a different formula "b" when calculating the annual energy use, but there are no requirements for auto-sleep.

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Draft 2 Manufacturers	N/A	Satellite Power Consumption	Taking into account the transmission method to the household, satellite TV uses significantly less total power to get TV signals to households. Satellites use solar power for electricity to power broadcasts, which is 100% renewable and 100% zero emission. Each cable headend uses significant power to deliver cable TV signals to households. There are an estimated 4,000-5,000 cable headends in the US. Satellite also does not have the environmental impact of laying thousand of miles of cable. These factors should be taken into account, as satellite based systems offer much lower total power consumption than cable or telco.	Acknowledged.
Draft 2 Manufacturers	N/A	Satellite Signal	Satellite TV requires a STB to be able to receive signals from a satellite that is over 22,000 miles away. The power being sent by the satellite is around the equivalent of 2 light bulbs. Satellite TV signals are sent at higher symbol rates than cable and the STB reception frequency range of 950-2150 MHz is much higher than the cable frequency range, which is below 1000 MHz. Signal loss increases with frequency so satellite STBs must be able to account for this additional signal loss. Spot beaming of channels to increase bandwidth utilization also introduces signal interference.	Acknowledged.
Draft 2 Manufacturers	N/A	Satellite Signal	Satellite signals geographically cover the entire United States, including Alaska and Hawaii, and receivers must account for this geography as well as weather conditions such as clouds, rain, and snow, which degrade the satellite signal strength that a customer receives on the ground. Satellite signals are also subject to interference from other satellite services as well as terrestrial sources of electro-magnetic emissions. In order to maintain an acceptable level of satellite reception for all consumers, satellite receivers use different modulation and coding than cable. These modulation and coding techniques require additional power.	Acknowledged.

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Draft 2 Manufacturers	N/A	Tier 2 Annual Energy Allowances	It is clear that the Tier 2 allowances cannot be met because the analysis behind the allowances is flawed. Satellite allowances call for a greater than 50% reduction which cannot be met.	The Tier 2 numbers in the Draft 3 specification have been adjusted to be less demanding based on comments received. EPA welcomes additional feedback on the numbers put forth in Draft 3.
Draft 2 Manufacturers	N/A	Tier 2 Annual Energy Allowances	It was stated the basis for the energy allowances in Tier 2 were based on 3W standby. In the San Diego meeting, Pace and Broadcom clearly stated that there is no hardware technology solution to 3W standby, nor is anyone sure when that will be possible in the future. The Tier 2 numbers based on this are not valid. (Additionally, as stated above, satellite stbs are one way and must always be listening for system information)	The basis for the proposed Tier 2 allowances involved two scenarios with approaches that manufactures and service providers could use to meet the criteria. The 3 Watt standby was assumed for a scenario in which a STB was designed to allow for a substantial amount of time in the standby mode. An Excel Workbook detailing the assumptions was distributed to stakeholders after the San Diego meeting.
Draft 2 Manufacturers	N/A	Tier 2 Annual Energy Allowances	All energy allowances should also take power supply efficiency into account. Note that when power supplies are operating at the lower end of their specified range, it is likely that they will operate at reduced efficiency than in the nominal active case.	Allowances do currently incorporate energy use by power supplies.
Draft 2 Manufacturers	N/A	User Interface	There should be no requirements placed on the user interface. Service providers should provide the user interface that best meets their business requirements.	The Service Provider version of Draft 3 has been edited to make a more general requirement for Partner to (1) ensure STB as deployed meets ENERGY STAR requirements, and (2) inform subscriber of other possible energy savings opportunities that are available.

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Draft 2 Manufacturers	N/A	New functions incorporated in spec over time	EPA to clarify how new functions would be addressed in the spec as they are added over time.	EPA has attempted to consider in this specification functionalities that are likely to be employed in the future. EPA understands that new functionalities are likely to be added to STBs in the future, and that other functionalities may be removed. EPA will revisit the issue in the Tier 2 time frame and later, EPA may need to revise the specification with assistance from industry as stated in line 624 of the manufacturer specification.
Draft 2 Manufacturers	N/A	Standby definition	Definition of standby and the amount of time in standby mode should be consistent across product categories.	EPA has attempted to make consistent use of the term standby by referencing IEC 62301. EPA will follow the process of modifying IEC 62301 to determine if changes to standby definitions in ENERGY STAR specs become necessary.
Draft 2 Manufacturers	N/A	Electronic Program Guide and System Update Requirements	CEE seeks clarification regarding the allowance for program and system information or private data (PSIP) scanning, which is given on page 12. Under heading E, "Electronic Program Guide and System Update Requirements" the STB is allowed to exit the standby mode for no longer than one hour in an eight hour period. Under heading F, "Auto Power Down and Other Standby Event Requirements" the STB can exit the standby mode for no longer than two hours in a 24 hour period. CEE asks that EPA clarify these allowances.	Section 4(E) (lines 547 - 552) has been removed. The maximum allowable time for exiting Standby is intended to apply only in a case where a manufacturer claims an auto power down feature and uses equation 'b' for the base assessment in section 4 (C). Note: the term "Standby" has been replaced with "Sleep" in the final Draft version of the specification.



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Draft 2 Manufacturers	N/A	Table 2	Explain how new functionalities, which are not identified in Table 2 on page 9, will be addressed by the specification. For example, if a new energy-using functionality is developed and employed, would it need to be incorporated in the base allowance? A clarification of this point will be essential for this fast-changing product category. hours in a 24 hour period. CEE asks that EPA clarify these allowances.	EPA has attempted to consider in this specification functionalities that are likely to be employed in the future. EPA understands that new functionalities are likely to be added to STBs in the future, and that other functionalities may be removed. EPA will revisit the issue in the Tier 2 time frame and later, EPA may need to revise the specification with assistance from industry as stated in line 624 of the manufacturer specification.
Draft 2 Manufacturers	N/A	Terminology	The definition of the standby mode and the amount of time that each product is allowed to remain in this mode are inconsistent. We recommend that EPA carefully consider this issue and aim for consistency across product categories whenever possible.	Based in part on stakeholder feedback EPA has decided to use the term "sleep" rather than "standby" to avoid confusion with other EPA specifications and international standards.
Draft 2 Manufacturers	Table 2	Additional Functions	The list of additional functionalities needs to be enriched. For example: Embedded DOCSIS or return channel, CableCARD, Embedded VoIP functionality, Digital Home Network interface (MoCA, 802.11, ...), Parasitic loads, Dual decode (NOTE: The European Code of Conduct could be used to enrich the list.)	EPA believes that at this time, it is not appropriate to provide an adder for a particular technology, with the exception of CableCARD. Furthermore, if there is technology that is embedded in the device that is not used on a continuous or high duty cycle time basis, the current approach provides incentive for OEMs to power manage those devices and place them into a low power state when not active.
Draft 2 Manufacturers	Table 1 and Lines 436-446	Base Allowance Test	What type of video was being processed by the sample STBs when determining the base allowances? A decoder processing rapidly changing video such as a sports program will consume much more power than while processing static images such as test patterns or talk shows with little background movement.	The data was reported in a study commissioned by CEA entitled "Energy Consumption by Consumer Electronics in U.S. Residences" and completed by Tiax LLC. Appendix C details the test procedures for each product. EPA believes the test procedures followed in the Tiax report are generally consistent with the test procedures defined in the STB specification.

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Draft 2 Manufacturers	N/A	Define Test Methods and Processes	Test methods and processes will need to be better defined to eliminate manufacturer, EPA, and Service Provider concerns. The Canadian Specification has many undefined details.	Please identify the details which are undefined.
Draft 2 Manufacturers	N/A	DOCSIS Modem	Another wrinkle is that service providers (cable/satellite/telco) are all in competition with each other, and they will continue to add features to distinguish themselves from their competition. The same applies to manufacturers. In the initial meeting to discuss draft 2, a statement was made that a DOCSIS modem in a STB was "duplicate functionality" to a stand alone DOCSIS modem in the customer's home and as such may be a luxury. These "luxuries" are what attract customers, and new technologies / features will continue to be added.	EPA believes that at this time an adder for a particular technology, save CableCARD, is not the direction to go in. Furthermore, if there is technology that is embedded in the device that is not used on a continuous or high duty cycle time basis, the current approach provides incentive for OEMs to power manage those devices and place them into a low power state when not active.
Draft 2 Manufacturers	105-107	Energy Settings Information	If the user can modify the energy settings, the user must be informed of the consequences. (See comments for direct example).	This suggestion has been incorporated into the Draft 3 specification for service providers.
Draft 2 Manufacturers	N/A	EPA vs. state standards	What are EPA's policies if some section of the guidelines conflict with individual state's requirements? Which rules will have precedence?	Please provide more detail as to the type of state requirements envisioned as a possible conflict.
Draft 2 Manufacturers	232-238	Expand Base Functionality Allowance	As was discussed in the meetings to discuss Draft 2, the FCC requires separable security, which is implemented today as CableCARD and embedded DOCSIS – which are both used 24x7 even when the STB is in standby mode. The DOCSIS modem can be critical to the operation of the cable box. The sample STBs used to determine the base functionality allowance for cable did not include either of these technologies. Either the base functionality allowance for cable needs to be expanded to include these items, or additional functionality allowances need to be given.	EPA agrees that given FCC requirements, CableCARD will require added energy consumption and therefore, has placed an allowance in the Tier 1 specification. EPA supports efforts to replace this technology with a more efficient technology as the occasion arises.

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Draft 2 Manufacturers	Table 1 and Lines 436-446	External Parasitic Loads	It is unclear if the measurements are to be taken with parasitic loads attached, for example an external USB device, external eSATA hard drive, LNA attached for satellite box, etc. Please provide clarification on external parasitic loads.	Clarification has been added to the test procedure. In general, parasitic loads should be detached before testing. In the case of an LNB for stat elite, the load should be subtracted from the reading, following the CSA procedure.
Draft 2 Manufacturers	N/A	Functional Test	The requirement to meet each ENERGY STAR functional test allows the customer to be free to decide on what functions he/she desires to use on a particular Set Top Box while knowing each function is ENERGY STAR rated.	The specification defines the Base Functionality on page 8 and Additional Functionalities on page 9. Rather than develop multiple tests for a single box, EPA believes one criterion based on the functionalities present in the STB is simpler and assures that the end user will see the energy savings expected.
Draft 2 Manufacturers	401-402	IPTV	IPTV is an expanding field. More time is needed to define and discuss IPTV requirements as they relate to this document. Some IPTVs can be multifunctional devices and thus blur the difference between a cable, satellite and IPTV box. Which requirement will be used for a box that has both satellite receiving and IPTV capabilities?	EPA has retained its standard language for this section in Draft 3. The definition has been standardized with other specifications. Draft 3 does include language focused on hybridized boxes and feels that is language is sufficient at this time.
Draft 2 Manufacturers	91-95	Labeling	A manufacturer cannot always know in advance the actions or commitments of a service provider, especially if a specific product's manufacturing life is over several years. A product may sit on a distributor's shelf for a while, and the target service provider may not be known at the time of manufacture. Even if a target service provider has been identified, that service provider may or may not decide at some time in the future to support ENERGY STAR after boxes are already in the field. The service provider may promote ENERGY STAR "on Screen", which is outside of the manufacturer's control.	Based on stakeholder feedback, electronic and physical labeling requirements have been edited with the goal of providing flexibility to service providers and manufacturers and enhancing consumer awareness opportunities.

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Draft 2 Manufacturers	N/A	Multi-box Systems	The upcoming design of STBs will include a STB type that might be called "Multi-Functional". This "packing" of capabilities will make STB definitions meaningless if the box will only be listed as one type of box. <b>(1)</b> One box type (with multi capabilities) but listed as a single type of box, might be rated using the function that will most easily pass ENERGY STAR power levels. In reality, the customer might use the unrated function leading to arguments because the manufacturer or service provider will want to determine which type of box their multi-functional" box will be called. <b>(2)</b> Require an ENERGY STAR rating for each box function. This would require that a box have several Energy Star ratings and stickers. <b>(3)</b> EPA might consider the box to be "Multi-Functional" and require the box to meet all the EPA Energy Star requirements for each of the major functions designed into the box.	The specification defines the Base Functionality on page 8 and Additional Functionalities on page 9. Rather than develop multiple tests for a single box, EPA believes one criterion based on the functionalities present in the STB is simpler and assures that the end user will see the energy savings expected. This approach was developed to address multi-functional STBs.
Draft 2 Manufacturers	N/A	Multi-box Systems	This "Multi-Functional" box is not a dream, but already exists and is on many planning boards. Customers like single boxes that do many things (e.g. cell phones) rather than have an assortment of boxes each requiring power cords, remotes, etc. The VCR and DVD machine is another prime example of a multi-functional box.	The specification defines the Base Functionality on page 8 and Additional Functionalities on page 9. Rather than develop multiple tests for a single box, EPA believes one criterion based on the functionalities present in the STB is simpler and assures that the end user will see the energy savings expected. This approach was developed to address multi-functional STBs.
Draft 2 Manufacturers	N/A	Multi-box Systems	To make this subject even more complex, the set top boxes of the future may contain many functions not even listed in this ENERGY STAR Set-top Box document. These will probably occur within the time of Tier 2. The "multi-functional" box specification can be expanded into the ENERGY STAR program as new functions are discovered.	EPA has attempted to consider in this specification functionalities that are likely to be employed in the future. EPA understands that new functionalities are likely to be added to STBs in the future, and that other functionalities may be removed. EPA will revisit the issue in the Tier 2 time frame and later, EPA may need to revise the specification with assistance from industry as stated in line 624 of the manufacturer specification.

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Draft 2 Manufacturers	N/A	Power Consumption	Power consumption of a STB will be highly dependent on the service providers who control the middleware and operational processes.	EPA recognizes the role the Service Provider plays in the energy performance of a STB and thus included requirements for providers in this ENERGY STAR STB program.
Draft 2 Manufacturers	118-128	Reporting Requirements	It is unknown what the impact of reporting requirements will be on heavy competition manufacturers. The set top box industry is very competitive.	Information can be aggregated by a third party before delivery to EPA. EPA will only use and publish summary information that does not identify individual partners.
Draft 2 Manufacturers	Line 429	STB w/ EPS	Does the STB with an external power supply have its allowance reduced from Tables 1 and 2 if the power supply is qualified separately?	No
Draft 2 Manufacturers	Lines 551, 570	Terminology	These two lines seem to conflict with each other in terms of the amount of time a STB is allowed to exit Standby mode – 1 hour per 8 hour period, 2 hours per 24 hour period.	Section 4 (E) which contains the "one hour in an eight hour period" has been removed.
Draft 2 Manufacturers	Table 2	Terminology	To avoid confusion, "High Definition" should be replaced with "High Definition Decode" to make it clear that the corresponding credit would also apply for a STB that would not provide HD output, but only decode the HD and convert it to SD for output.	EPA does not agree that the HD allowance should be applied in this case. EPA has placed allowances for functionalities and a device that decodes but does not display in HD is only providing partial functionality. Additionally, DTAs can accomplish this within the base levels proposed so no additional allowances appear to be warranted.
Draft 2 Manufacturers	Line 429	Testing clarification	To be qualified, does a STB with an external power supply need to be tested with the power supply, and does the power supply then become automatically qualified if it is tested with the STB that has become qualified?	Yes, the STB should be tested with the EPS. However, the EPS is not automatically qualified for ENERGY STAR until the EPS manufacturer completes the Partnership Agreement process and submits test data on the EPS. Alternatively, the power supply may be tested against the ENERGY STAR external power supply requirements. As long as the power supply meets or exceeds these requirements, it can be packaged with a STB seeking to qualify for ENERGY STAR.
Draft 2 Manufacturers	Lines 580-585	UI Design	The manufacturer may have limited control over the UI design, the service provider has overall control of the specifications for the STB they are purchasing.	Section (5) User Interface, is not a requirement but optional. Manufactures may offer this feature to service providers.

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Draft 2 Service Providers	21	Effective Dates	We believe this to be a more realistic schedule given the time needed to manufacture and test set-top hardware & software meeting the new ENERGY STAR requirements. This assumes that a final specification is available in January 2008 and that the Tier 2 requirements are removed. <b>Replace existing text on Line 21 with, "TBD % ENERGY STAR qualified set-top boxes to subscribers by January 1, 2010;"</b> .	Draft 3 has been edited to take this suggestion into account.
Draft 2 Service Providers	20	Terminology	To clarify that the percentage of set-tops is based on the total number purchased <b>replace</b> "purchase and deploy" with <b>"of purchased and deployed"</b> .	Draft 3 has been edited to take this suggestion into account.
Draft 2 Service Providers	22 and 23	Terminology	We assume this percentage is not cumulative. <b>Replace existing text with, "TBD % ENERGY STAR qualified set-top boxes to subscribers by April 1, 2011; "</b> .	Draft 3 contains clarified language to address this point.
Draft 2 Service Providers	36	Terminology	To clarify that set-tops purchased and deployed before revised requirements are in effect are not expected to meet the newer requirements <b>replace existing text on Line 36 with, " ensure that ENERGY STAR qualified set-top boxes continue to meet or exceed ENERGY STAR technical requirements in effect at the time of their purchase for the duration of their deployment."</b>	Draft 3 has been edited to take this suggestion into account.
Draft 2 Service Providers	37	Terminology	We believe it is sufficient to rely on the manufacturers' statement of compliance. <b>Delete, "This is confirmed by testing for ENERGY STAR qualification while the product is connected to the headend."</b>	EPA strongly believes that service providers should test STBs within their environment to ensure that the STBs perform as expected to meet ENERGY STAR criteria. Not every STB delivered needs to be tested. A sample of each type of device and configuration is appropriate. EPA seeks further guidance from service providers on language appropriate to achieve this objective.

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Draft 2 Service Providers	54	Terminology	To clarify that the mark appears at initial power up and not for a duration of five seconds every time the set-top returns from standby mode <b>replace</b> , "The ENERGY STAR mark must appear for a duration not less than five seconds at power up..." with: " <b>The ENERGY STAR mark must appear for a duration not less than five seconds at initial power up...</b> "	The Service Provider version of Draft 3 has been edited to make a more general requirement for Partner to (1) ensure STB as deployed meets ENERGY STAR requirements, and (2) inform subscriber of other possible energy savings opportunities that are available. EPA recognizes that in many, if not the majority of, cases the STB will be configured to meet a subscriber's needs at the time of installation of the STB by an installer working for the service provider.
Draft 2 Service Providers	64-67	Terminology	We believe this requirement is out-of-scope and urge the EPA to delete it. Service providers should not be required to use software to inform subscribers of the efficiency opportunities within the set-top product. Requiring that software be deployed in this manner dramatically raises the cost for service providers to participate in the program. Therefore, <b>delete</b> , " <b>deploy user interface software features that inform {...}</b> ."	The Service Provider version of Draft 3 has been edited to make a more general requirement for Partner to (1) ensure STB as deployed meets ENERGY STAR requirements, and (2) inform subscriber of other possible energy savings opportunities that are available. EPA recognizes that in many, if not the majority of, cases the STB will be configured to meet a subscriber's needs at the time of installation of the STB by an installer working for the service provider.
Draft 2 Service Providers	92-93	Terminology	To protect the confidentiality of the service provider and the industries participating in the program <b>replace existing text on Lines 92-92 with, "Any information used will be masked and aggregated by the EPA and will not reveal information specific to the Partner or its specific industry segment."</b>	EPA has retained its standard language for this section in Draft 3.
Draft 2 Service Providers	NA	Terminology	<b>Replace</b> the term STB with "set-top box" throughout document	EPA has continued to use the abbreviation STB throughout the document for brevity.
Draft 2 Service Providers	N/A	Data reporting	Have service providers report data on compliance in the field.	EPA intends to collect purchase and deployment data annually from service providers. We welcome specific suggestions on what questions to ask.

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Draft 2 Service Providers	N/A	Effective Dates	First phase (1/1/2009) 25% of units meeting E* Tier, second phase (4/1/2010) 25% of units meeting E* Tier 2, third phase (4/1/2011) should be higher than second phase.	A requirement of 50% has been added to the specification, applicable starting in 2009. EPA will re-evaluate the appropriateness of this percentage for 2010 and 2011, when Tier 2 becomes effective and there is more information on the likely availability of qualifying products.
Draft 2 Service Providers	N/A	Entire Document	Congratulate EPA on the Market Transformation approach and the three-phase deployment of set-top boxes.	
Draft 2 Service Providers	N/A	Labeling	CEE supports labeling scheme that is evident to consumers and applies to manufacturer requirement as well.	EPA welcomes suggestions as to whether or not the labeling requirements in the Draft 3 specifications achieve this goal.
Draft 2 Service Providers	N/A	Shipment and deployment	Shipment and deployment data should be gathered by both manufacturers and service providers for simple and advanced STB categories. Discuss with industry what the likely composition of qualified units are being deployed.	EPA intends to collect purchase and deployment data annually from service providers and shipment data annually from manufacturers. EPA will keep this suggestion on file for the time when the data collection forms are developed in 2009.
Draft 2 Service Providers	N/A	Testing clarification	EPA to clarify testing at "head end" requirement by adding "based on current production capabilities"	It is acceptable to test either at the live head end or at representative head end in the lab. This has been clarified in the Draft 3 Service Provider specification.
Draft 2 Service Providers	N/A	Deployment Data Requirement	Urge EPA to require not "encourage" - deployment data to be segmented by "meaningful product characteristics." One characteristic we recommend is the categorization of a qualified STB as "simple" (base functionality only) or "advanced" (with additional functionalities), as this characteristic has significant energy use implications. This is especially important because we understand that "advanced" boxes will comprise an increasing percentage of the market over time. We recommend that this be added to the manufacturer shipment data reporting requirements as well.	EPA intends to collect purchase and deployment data annually from service providers and shipment data annually from manufacturers. EPA will keep this suggestion on file for the time when the data collection forms are developed in 2009.



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Draft 2 Service Providers	N/A	Deployment Levels	Suggest the following purchase and deployment levels: <ul style="list-style-type: none"> <li>• 25% of ENERGY STAR-qualified STBs to subscribers by January 1, 2009 (Tier 1)</li> <li>• 25% of ENERGY STAR-qualified STBs to subscribers by April 1, 2010 (Tier 2)</li> <li>• &gt;25% of ENERGY STAR-qualified STBs to subscribers by April 1, 2011 (Tier 2)</li> </ul>	A requirement of 50% has been added to the specification, applicable starting in 2009. EPA will re-evaluate the appropriateness of this percentage for 2010 and 2011, when Tier 2 becomes effective and there is more information on the likely availability of qualifying products.
Draft 2 Service Providers	N/A	Effective Dates	We applaud EPA's proposal to require providers to purchase and deploy an increasing percentage of qualified boxes starting in 2009	
Draft 2 Service Providers	N/A	Labeling	We support a labeling requirement for cable, satellite, and telecom service providers, because these entities play an essential role in ensuring that physical or electronic labeling provided by the manufacturer is intact when the STB reaches the consumer.	EPA welcomes suggestions as to whether or not the labeling requirements in the Draft 3 specifications achieve this goal.
Draft 2 Service Providers	37	Terminology	We suggest a clarification to the statement regarding testing and the "head end" updating STBs and additional feature sets that may increase active use. We recommend on page 1, line 37. The specification requirements should capture changes in both patterns of that the phrase "based on current production capabilities" be added.	It is acceptable to test either at the live head end or at representative head end in the lab. This has been clarified in the Draft 3 Service Provider specification.