

#	Topic	Subtopic	Comment	EPA Response
1	Scope	Excluded Products	<p>Although we understand and appreciate that the EPA is responding to industry's request to explicitly exclude older game consoles from the scope of the standard, we have found the phrase "game consoles brought to market prior to January 1, 2011" to be problematic. (The EPA has also recognized that the term ((brought to market" is ambiguous.) A stakeholder has attempted to create a suggested revision for this statement by adding clarifying words such as ((originally launched", ((same architecture" or ((older generation", but we've found that we just seem to generate a more complicated statement with even more words that need to be clarified. The best revision to the EPA phrase that we were able to come up with is the following statement: ((Game consoles that were first placed on the market prior to January 1, 2011. (Revisions that do not significantly change the architecture are considered to be a continuation of the console first put on the market.)" Unfortunately, it is apparent to us that even this statement may not be totally clear to everyone. We can anticipate that there will be questions about what ((first placed on the market" means, and what the definition is for a ((change of architecture". As a result, we have decided that the original suggestion for a flat exclusion for consoles below 20W still seems to be the most clear-cut and simplest way to specify exactly what is excluded in an unambiguous way, and we support the request to use that method to avoid future misunderstandings by people who may be unaware of the history of what the EPA was trying to achieve.</p>	<p>EPA recognizes the difficulty in defining "brought to market." Industry has suggested language that would meet exclusion needs by excluding consoles incapable of rendering HD video output of a resolution of 720 lines or great via HDMI. EPA agrees and has made the appropriate changes to 2.2.1.ii.</p>
2	Scope	Excluded Products	<p>[Stakeholder] supports EPA's effort to provide greater clarity as to which consoles are covered by the program requirements. We agree that older consoles should not be covered. However, the date-based approach used in Draft 3 creates ambiguity, particularly about what "brought to market" means. Game consoles are periodically updated during a particular generation's lifespan, driving down the energy consumption of the console. It is unclear whether such interim revisions would constitute "brought to market," or in the alternative be considered distinct from previous models within the same generation.</p> <p>We think that the "20W" exclusion more clearly and unambiguously specifies what is excluded. Additionally, it is no broader in reach than what appears to be the intended scope of the date-based limitation. Accordingly, we propose that EPA reconsider using the 20W exemption and revise Section 2.2.1.ii to read as follows: "Devices that use fewer than 20 watts in Active Game mode with either internal or dedicated external power supply units."</p>	
3	Motioning and Positioning Sensing Input		<p>This definition and test method reference (Clause 6, Test Procedure for all products, 6.1, UUT Preparation, sub-clause F1), are intended to clarify that a motion-sensing device is not included in power measurements. However, the definition is limited only to devices which use "spectrum sensors." This for us is a bit confusing and does not appear to apply to motion-sensing devices currently on the market.</p> <p>The Industry Proposal to further improve the energy efficiency of game consoles contains a definition for a similar device now in use that may be more appropriate: Gesture- and Speech- Recognition Natural User Interface (NUI): Functionality which allows the user to interact with the games console without the need for a game pad, external controller or other external device. This is accomplished by sensing and recognition of physical gestures and/or voice commands.</p>	<p>The term "Motion and Position Sensing Input" is no longer included in section 6.1F1) of the Draft Final Test Method. The term was used once in Draft 3 as an example of a type of accessory that is not required for testing. The definition has been removed from section 1F2) in the Draft Final Performance Requirements since "Motion and Position Sensing Input" is no longer in the Draft Final Test Method.</p>
4	Auto Power Down	Power State	<p>For Auto-Power Down to be effective, game consoles need to automatically power down to the appropriate low power level after an extended period of inactivity and the test method needs to measure the power levels after the specified period of inactivity has occurred. EPA should clarify that the console needs to meet the appropriate standby power limit (passive or networked) after APD, and this should be verified by the test procedure for all modes that support APD.</p>	<p>Sections 6.5 and 6.6 of the Final Draft Test Method include tests that measure the power consumption of the UUT after one hour of inactivity for the "Video Stream Pause" and "Game Play" modes. The power measurements from these tests are used to verify that the UUT meets the appropriate standby power limit after APD has occurred.</p>
34	APD verification in Navigation, Video streaming, and Optical Disk Play Modes		<p>The test method in draft 3 only verifies APD in Game Play mode. This does not guarantee the correct implementation of APD in other key modes, such as navigation, video streaming and optical disk media play. We strongly recommend that the test procedure be amended to include APD verification and power measurement in these modes, including the following conditions: -The console does NOT APD after 1 hour of user inactivity if the video program is still playing (both streaming and optical disk play); -The console APD's after 4 hours of inactivity, or within 1 hr of the end of the video program, in Video Streaming Active, Video Streaming Pause, Optical Disk Play Active and Optical Disk Play Pause modes; - The console APD's after 1 hr in Navigation mode.</p>	<p>DOE included APD test requirements in the Draft 3 Test Method only for "Game Play" and "Video Stream Pause" modes because implementing APD in these modes is expected to be more complex. If a console has APD correctly implemented in the "Game Play" and "Video Stream Pause" modes, and it satisfies the "Standby Mode" power requirement, then the rest of the modes that require APD will most likely be correctly implemented as well. There has been no change to the list of modes used to verify APD in the Draft Final Test Method.</p>

5	Auto Power Down	Power State	<p>The phrase "a low power state" is ambiguous since it does not refer to a specific mode or function defined in the document. Therefore, we suggest the definition be updated as follows to more precisely and effectively describe APD: Auto Power Down (APD): The ability of a Game Console to go into Low Power Mode when left without user input for a predetermined amount of time.</p> <p>This approach would give manufacturers the option of having consoles APD into either standby mode or networked standby mode. Each of these modes would be defined in the document (see Comment #1) as functions within Low Power Mode" and with specific power limit requirements.</p>	<p>Section 5D) of the Draft 3 Test Method required a test operator to verify that the unit under test (UUT) is placed in "a low power state" after APD completes. This requirement has been removed and the phrase is no longer used in the Draft Final Test Method.</p>
6	Auto Power Down	Timing Requirements	<p>Clauses 3.1.1.v and 3.1.1.vii are confusing and could be interpreted as APD not being required during Game Play or Media Play. If that were the case, it would eliminate much of the benefit of APD in the specification. Based on our discussion in the webinar, we believe this is not EPA's intent, and we encourage EPA to clarify that APD is required in all modes, and particularly in the following cases:</p> <ul style="list-style-type: none"> - Game Play, whether paused or not, 1 hour after the cessation of user input - Video streaming, with a delay of up to 4 hours after the cessation of user input, in order not to APD in the middle of a movie - Optical disk play, with a delay of up to 4 hours after the cessation of user input, or 1 hour after the end of the movie, in order not to APD in the middle of a movie. - Navigation, 1 hour after cessation of user input. 	
7	Auto Power Down	Timing Requirements	<p>The proposed language in the EPA document regarding the circumstances in which game consoles must auto power down is as follows: "A Game Console without user input, Game Play or Media Play are not without user input, by default, must auto-power down to a standby mode within 1 hour of user inactivity (i.e., the console receives no user input for 1 hour or more). (Sec.3.1.1[v])</p> <p>A Game Console in Game Play or Media Play need not automatically power down. (Sec.3.1.1[vii])"</p> <p>This language, as noted by a participant in the August 10 webinar, does not appear to be consistent with the test method or our understanding of the EPA's current intent. The test method states that a game console, except for in certain prescribed circumstances, is expected to power down after one hour of activity, from Game Play (Sec. 6.6.P) and Video Stream Pause (Sec 6.5.K) modes. Our interpretation of the Draft 3 requirements are that consoles must initiate APD from Game Play and Media Play Pause modes after a period of one hour in which no user input has been received.</p> <p>Therefore, we suggest the language be updated as follows to more precisely describe the maximum period of user inactivity allowed for each mode: A Game Console must auto-power down to Low Power Mode within the period of user inactivity (absence of user input) specified in the table below for the relevant mode:</p> <ul style="list-style-type: none"> -Navigation: 1 -Game Play: 1 -Video Stream Play: 4 -Video Stream Pause: 1 -Other Active Mode Functions: 1 	<p>EPA recognizes this concern and has expanded the definition of 3.1.1.v as well as deleted in its entirety 3.1.1.vii replacing it with new language. The new language is as follows: v. A Game Console without user input, by default, must auto-power down to a standby mode within the period of of user inactivity (i.e., the console receives no user input) specified in the Table 1 below.</p> <p>Navigation Menu: 1 hour Game Play: 1 hour Game Play Pause: 1 hour Video Stream Play: 4 hours Video Stream Pause: 1 hour</p>
8	Auto Power Down	Timing Requirements	<p>[Stakeholder] proposes two clarifying edits to Section 3.1.1.v. First, the subsection is somewhat unclear about which modes are subject to APD. Second, in line with previous understandings of how the APD process will be implemented, the APD criteria should allow for user modification of the APD time settings. To address both of these concerns, we suggest the following revision:</p> <p>"For Operational modes other than Media Functions, the period of inactivity required to trigger auto-power down shall be set at 1 hour or less from the time of the last user input. For Media Functions, auto-power down shall be triggered after 4 hours or less of audio or video media playback (including video files, streaming audio-visual content, IPTV or Digital TV) or triggered by user inactivity of 1 hour or less after termination of video media content. The user may have the option to change the time settings for the auto-power down function from within the equivalent system settings menu options (e.g., for retail display purposes or for heavy game users)."</p> <p>In light of these revisions, we suggest striking Section 3.1.1.vii.</p>	

9	Auto Power Down	Selection and Disable	<p>We support EPA's requirement that the initial setup procedure of the console must not include an option to disable APD, but may include a link to a separate APD setup screen which includes the option to disable. While this is different from our initial proposal to not even include a link, and let users navigate to the system settings screen later, we believe this is an acceptable compromise with industry's desire to make it easier for those users that do want to disable APD. The initial or "out-of-the-box" setup procedure of a console is a critical time when users have to make a number of decisions without much time to think about these decisions and at a time when they might not be familiar with the features and experience of their new consoles. Giving users the option of disabling APD at that time creates a risk that a significant number of them will disable APD without giving it a fair try, and potentially based on their experience of this functionality on other devices such as PCs. Once APD is disabled, very few users will go into system settings to re-enable it.</p>	EPA appreciates the comment and the support for its proposal.
10	Auto Power Down	Selection and Disable	<p>Future game consoles may include the ability to run applications that do not fall into the category of either "games" or "media content." Users should be presented with an option to temporarily suspend the APD timer when starting to use any application for which the ability to operate for extended periods without user input is central to its purpose. The proposed language regarding the circumstances in which game consoles may be prompted to cancel the APD timer (Sec.3.1.1(iii)) is too restrictive to just games and media content.</p> <p>Therefore, we suggest the language be updated as follows to better capture the variety of applications that should be permitted to prompt users to cancel the APD timer:</p> <p>"In limited circumstances users may be prompted to cancel the APD timer temporarily to allow certain types of games, media content, or other applications to run without user input (e.g., simulation games which run without user input for periods longer than 1 hour). Upon starting such games, media content, or other applications, the user will be prompted to temporarily suspend auto-power down if required. Auto power down will be re-enabled when the console is next powered on."</p>	EPA recognizes the concerns with 3.1.1.iii. To clarify the option of disabling APD for specific game titles, EPA has changed the language of this section to read the following:
11	Auto Power Down	Selection and Disable	<p>In Sections 3.1.1.ii and 3.1.1.iii of Draft 3, EPA specifies two options for disabling APD: disable Active Game Play Mode APD only or disable APD for all modes. We encourage EPA to explicitly acknowledge a third option: disabling APD only for a specific game or application. For those gamers who are only interested in disabling APD on an "as needed" basis for specific titles, this targeted option will be less disruptive of the console's APD functions because it may encourage users to leave the APD function enabled for other games and modes.</p> <p>Further, to provide a better user experience and to reduce the incentive to disable APD more broadly, the selection to disable APD for a specific game or application should be retained as the default for that particular game or application upon subsequent use. Otherwise, if a user is forced to disable APD every time the user plays a particular title, the user may be tempted to disable APD for all games or perhaps disable all APD functions across the console.</p> <p>To address both of the foregoing concerns, we propose modifying Section 3.1.1.iii to read as follows: "Users may have the option to disable APD for a particular game title or application. For example, in limited circumstances, users may be prompted to suspend APD temporarily to allow certain types of games or software applications to run without user input, e.g., simulation games which run without user input for periods longer than 1 hour. Once selected, the temporary APD suspension may remain enabled for replay of such game or media content upon restart of the console."</p>	iii. In limited circumstances users may be prompted to suspend APD for certain types of games, media content or other applications to run without user input (e.g. simulation games which run without user input for periods longer than 1 hour). Upon starting such games, media content or other applications, the temporary APD suspension may remain enabled for replay of such game, media content or other applications upon restart of the console. Auto-power down for other titles will not be disabled.
12	Auto Power Down	Selection and Disable	<p>As discussed during the webinar, the exact method of obtaining user confirmation to disable APD should not be specified. Instead, [stakeholder] suggests that Section 3.1.1.iv read as follows: "If the user selects a mode other than auto power down on initial activation of the console, a second selection process shall be prompted to confirm this choice."</p> <p>This change satisfies the need of providing users contemporaneous notice while permitting console makers appropriate flexibility in how they provide that notice.</p>	EPA has updated the language in 3.1.1.iv to reflect the language update "a second selection process shall be prompted to confirm this choice" removing the remaining language referring to the "pop-up". However, the language "on initial activation of the console" was excluded from the stakeholder proposed language to allow for the education and awareness of such a selection to the user if they were to choose to deactivate it in the future.
13	Auto Power Down	System Maintenance	<p>To ensure that APD does not interfere with console system updates, maintenance, software installation, or content downloading, we recommend further clarifying Section 3.1.1.vi to read as follows:</p> <p>APD shall be suspended temporarily to allow for the uninterrupted performance of any system update, system maintenance, software installation or content download and shall not occur during the display of an error message to users in the event of a system error. After an automatic wake event, the console must power down immediately after performing required System Maintenance and Downloads.</p>	EPA has updated the language to allow for system maintenance and downloads while the console is in a mode other than standby to the following language: vi. Auto-power down shall be suspended temporarily to allow for the uninterrupted performance of System Maintenance and Downloads and shall not occur during the display of an error message in the event of a system error. After an automatic wake event, the console must auto-power down immediately after performing required System Maintenance and Downloads.

14	Auto Power Down	Legacy Games	<p>There continues to be an issue regarding the operation of APD as it relates to the use of legacy games (i.e., games designed for consoles excluded in Section 2.2) on a next generation console. This concern is distinct from the "Save on APD" issue. When legacy games are played on a next generation system, it may not always be possible for the console to enter into APD when playing those particular games because of various inherent limitations associated with backward compatibility. Importantly, however, this limitation is specific to the limited case of legacy games and would not otherwise affect the console's ability to enter into APD when playing other games or operating in other modes. In light of this concern, we recommend including an exception that would cover the use of legacy games on a next generation system and propose that the following additional criteria be added to Section 3.1.1:</p> <p>These APD requirements do not apply to the operation of a console when playing games designed for an excluded system as specified in Section 2.2.</p>	<p>EPA removed the language of legacy games in Draft 3 as it was inherent to the "Save on APD" requirements that were also removed. It is understandable that some manufacturers would desire to give users the ability to play older games on their next generation consoles. However, adding in language for an exception of legacy games should not be separate from 3.1.1.iii which lays out limited circumstances in which certain types of games (in this case past generation games) might necessitate a temporary APD suspension.</p>
15	Auto Power Down	Consumer Information	<p>Finally, Section 3.3.1 should clarify that information provided to the customer may be provided by electronic means, which could be more environmentally friendly than paper.</p>	<p>EPA does not preclude or suggest the method of notifying customers of information materials. EPA relies on the processes of the manufacturer to deliver the information in the best possible way to their customers. EPA only requires that they do so with the shipped item.</p>
28	User Information Requirements		<p>We suggest that this information be included as part of the TV interface or as part of in-box documentation.</p>	
16	Media Stream and Active Navigation Function Power Limits	Levels	<p>As discussed in our previous submissions, the video game industry is committed to reducing the power consumption of video game consoles. [Stakeholder] supports practical, voluntary efforts to make cost-effective energy improvements to game consoles while continuing to allow our members to provide state-of-the-art gaming experiences.</p> <p>Unfortunately, neither the navigation nor the media streaming power caps suggested in Draft 3 are achievable, either by the present generation of game consoles or by employing the best scalable technology appropriate for any next-generation console platform.</p> <p>The industry recommends a two-tier approach to power caps. Tier 1 would be for current and any next generation consoles that meet a power cap of 90 watts, in both media playback mode and navigation mode. Tier 2 would be implemented by 2017, and would cap power in both media playback mode and navigation mode at 70 watts. These caps represent a commitment to breaking the cycle of each new generation using much more power than the last, and as such they are already aspirational caps that will be difficult to meet absent substantial innovation. In the past, new-generation consoles have significantly increased power consumption compared to the previous generation. Here, the console makers have proposed keeping consumption flat for any next generation and to reduce consumption over time. We continue to believe that this is the best path forward.</p> <p>The media streaming power cap presented in Draft 3 is not achievable by industry. During the webinar on August 10th, EPA suggested that energy savings could be realized by implementing recent advances in dynamic power scaling computer architecture, the addition of dedicated circuitry optimized for media play, or taking advantage of energy savings realized in state-of-the-art high-performance laptops for gaming. None of these proposals will allow game consoles to reach the power caps suggested in Draft 3.</p>	

17	Media Stream and Active Navigation Function Power Limits	Design Approaches & Feasibility	<p>Scalable computer architecture refers to best-available processor technology, capable of responding to computing tasks by only using an appropriate fraction of the computing capacity corresponding to the actual computing work to be done. What this means is that a console which employs scalable architecture should call for less power while performing media and navigation functions than when providing active gaming. However, there are limits to scalability that prevent a console from reaching power levels of stand-alone devices optimized for these functions.</p> <p>Power scaling technologies apply mainly to the CPU and GPU. However, these components are only two of many which consume significant power. In addition to components common to stand-alone devices which decode digital media, a game console may also employ additional memory, a hard disk drive, an optical disk drive, specialized interface processors, a fan, and a power supply optimized for a greater load. All of this is delivered through a sophisticated user interface which leverages the processor power of the console. Other components associated with power distribution also contribute to an electrical overhead that is not comparable in a dedicated media player. In view of this, the power reduction over the industry proposal limit demanded by the Energy Star is not achievable through the use of scalable technology.</p> <p>Industry was asked to consider the addition of dedicated circuitry optimized for media play to improve energy efficiency on the scale of the limits in the EPA proposal. As noted above, even with scalable computer architecture, a game console necessarily has numerous systems with limited or no scalability, drawing power to support the gaming CPU and GPU. In order to hit the limits suggested, it would be necessary to build separate subsystems with parallel architectures and user interfaces within the console itself. For such a product to realize its efficiency potential, it would be necessary when the user changes from one function to the other to essentially switch all the components of the console system off while switching on the separate media system. Functionality would be compromised by additional latency introduced when switching from one system to the other.</p>	
18	Media Stream and Active Navigation Function Power Limits	Design Approaches & Feasibility	<p>Any future generation consoles may implement scalable architecture, which uses only an appropriate fraction of the computing capacity available to complete the computing task. Although this would allow a future generation console to use less power based upon the function used, there are practical limits on how much energy can be saved.</p> <p>The best gains in power scaling are likely to be had with respect to the design of the key chipsets, namely the Central Processing Unit ("CPU") and the Graphics Processing Unit ("GPU"). But these chips account for only a portion of the overall electrical overhead. Of course, game consoles employ other components such as volatile memory, DVD-ROM drives, hard drives, fans, and power supplies. These other components contribute substantially to the overall electrical overhead but may not have power scaling features. As a result, scalable technology will not reduce consumption to the levels that EPA suggests in Draft 3.</p> <p>During the August 10 webinar, EPA also suggested the addition of dedicated circuitry optimized for media play to improve energy efficiency. As noted above, even with scalable computer architecture, a game console has various systems which do not scale to the processor. To meet the power caps in Draft 3, console makers would need to build-in separate subsystems with parallel architectures and user interfaces within the console itself. In essence, this would be a completely separate media player within the console box. Aside from the additional latency introduced when switching from one system to the other, the cost of such a "two-in-one" box would drive the cost of game consoles higher. Essentially, the product's price would include the cost of a game console in addition to the cost of a stand-alone media player, plus whatever additional circuitry is necessary to switch between the two. Also, the size, transportation costs, and end-of-life disposals would all be increased.</p>	<p>State-of-the-Art game, what game consoles have always been about, is, in essence, not covered by power caps in this program. Instead, game play is being allowed continue uninhibited. However, game consoles that are increasingly dedicating themselves to providing non-gaming services such as media play, should be held to similar standards as devices providing these same services. Devices such as set-top boxes can use as low as 4W (though more typically 10-20W) in Active Streaming Media. For these reasons, a requirement of 45W seems reasonable. The game console recognition program recognizes those manufacturers that are able to produce a console that pushes the limits of current efficiency within the industry. Though we would prefer to see the entire industry make these strides, it is imperative that EPA place requirements that improve efficiency. Regardless, EPA is making adjustments to these requirements in favor of industry requests for higher levels. These requirements are voluntary requirements meant to push the market towards greater efficiencies and as such, represent what is possible.</p> <p>Currently, 49% of U.S. households own a dedicated game console, or 57 million U.S. households. With media being played 2 hours per day, consuming 33 kWh per year would provide double the savings of what is currently proposed by industry, which would amount to over 1.8 million MWh per year and a national savings of \$216.5 million dollars in electricity bill savings. The electricity savings equates to over 1.3 million metric tons of CO2 emissions prevented, equivalent to the emissions from over 250,000 cars.</p>
19	Media Stream and Active Navigation Function Power Limits	Design Approaches & Feasibility	<p>[Stakeholder] strongly supports EPA's proposed limits of 35W for Navigation and 45W for Streaming. The increasing use of game consoles for media play, and particularly video streaming, is resulting in a substantial aggregate game console energy use in the US and needs to be optimized for efficiency.</p> <p>Standalone media devices can stream high definition video for much lower power: less than 5W for Over-the-top (OTT) devices, and 20W or less for fully-featured set top boxes. We believe that EPA's proposed levels are technologically feasible and cost-effective for the next generation of game consoles, given the broad availability of power scaling computing technology in computers today, such as Central Processing Units (CPUs), Graphics Processing Units (GPUs). System on a chip (SoC) and hybrid architectures that can switch seamlessly between a low-energy subsystem for streaming and a higher energy subsystem for gaming also offer opportunities for power reductions in streaming. Lastly, the latest power supply technology enables efficiencies around 90% in the relevant load range of game consoles, which offers another 5% or higher efficiency opportunity relative to power supplies used in current game consoles. EPA's proposed levels are technologically feasible and cost-effective. These two modal limits by themselves will result in up to 1,700 GWh annual energy savings by 2020, equivalent to the output of a 300 MW power plants and saving American consumers \$200 million annually in electricity bill savings.</p>	

20	Media Stream and Active Navigation Function Power Limits	Cost Effectiveness	<p>The cost of this device would be comparable to the total cost of the game console components plus the stand-alone system components plus the switching circuitry. The size of the resulting console-media player hybrid would increase proportionately, would add to higher costs for transportation and end-of-life disposal, and would add proportionately to the waste stream. This additional cost could never be paid back to the consumer through the electrical savings realized in the life of the product. Here is why:</p> <p>The difference in media streaming power between the Energy Star proposal and the Industry proposal is 45 watts. For a user who streams two hours of video per day, every day of the year (an extremely heavy usage scenario if assumed to be average for the entire installed base) the total energy savings would be about 33 KWhr/year. According to the U.S. Energy Information Administration, the average retail cost for residential electricity in the US is about 10 cents per kilowatt hour, so a consumer who views streaming media two hours a day, 730 hours per year, would save approximately \$3.29 per year if the proposed Energy Star limits were invoked rather than the limits in the Industry proposal. Currently, there are a number of retail appliances optimized to stream media. According to Business Week, the parts for a typical device of this type cost approximately \$64. If a similar cost of components optimized for efficient media streaming was added to the total cost of a game console, the payback period for the consumer provided by the reduced utility bill would be nineteen and one half years. More occasional use would have a proportionately longer pay-back period. This payback period far exceeds the anticipated life of the console and the additional cost would have a significant negative impact on the affordability of the product.</p> <p>In conclusion, the media streaming power cap in the Industry Proposal is already based on deployment of the best available technology while maintaining a financially viable platform for state-of-the-art gaming. Comparison with other devices optimized for different primary functions are not valid. The limits in the Industry proposal are aggressive, but achievable. The limits in the Energy Star proposal are not achievable.</p>	
21	Standby Efficiency Requirements	Levels	Should specify that this is for the console only, and does not include the power draw for an unloaded external power adaptor.	EPA notes that these Standby Efficiency Requirements are not for the console only but for the console and the power adaptor.
21	Active Navigation Function Limits		Unlike a simple computer menu, navigation mode is by design an application that provides an active display which invites the user to engage in the various functionalities provided by the console. While engaged in navigation mode, game consoles are rendering animated graphics with avatars and real time information and maintaining on-going internet-connected activity. This involves various background operations including but not limited to active processing, seeking data from storage and writing to and reading from memory or cache while waiting and responding to user input. Its purpose is to attract the users and inform them of the various entertainment options available. Not coincidentally, because navigation mode is an application rather than a simple static list, the computing power required to deliver this functionality is virtually identical to the power required for media play. In view of this, limits for navigation mode should be the same as the limits for streaming media.	
22	Active Navigation Function Limits		<p>Draft 3 suggests an unachievable power cap in the "Active Navigation Menu" of 35 watts. Unlike computer menus, navigation mode on a game console is an application that provides an active display that invites the user to engage in the various functionalities provided by the console. While engaged in navigation mode, game consoles are rendering animated graphics with avatars, processing real-time information, and maintaining on-going internet connectivity. This involves background operations such as active processing, seeking data from storage, and reading and writing from memory cache while waiting for and responding to user input. The purpose of this type of navigation menu is to attract users and to inform them of the various entertainment options available. The computing power required to deliver this functionality is virtually identical to the power required for media play, much more than the proposed 35 watts.</p> <p>For all these reasons, the power caps proposed in Draft 3 are not achievable, and we urge EPA to adopt the power caps we have previously proposed.</p>	Based on these concerns, EPA has raised the Active Navigation Menu level from 35W to 40W. However, since most Active Streaming Media is able to render video and continued internet connectivity in similar functioning devices at as low as 25W, EPA believes game consoles should be able to meet 40W with an extra 15W more than other devices.

23	Standby	<p>As noted by a participant in the August 10 webinar, a console that is charging another device would no longer be in "standby" mode and instead be in a "charging" mode. We believe that equipment in standby mode should not be capable of providing another function in standby mode. Since charging is a secondary function, the inclusion of the phrase "although may be capable of charging devices in this mode" makes this definition inappropriate.</p> <p>Moreover, the definitions of standby and active modes do not encompass all significant modes that can reasonably be expected to exist in the immediately forthcoming generation of game consoles. Any mode that provides a secondary function but does not require user input would not apply to the definitions of both standby and active mode and therefore would not be subject to modal power requirements.</p> <p>Therefore, we suggest the definitions be updated as follows to more accurately describe low power mode and specifically define functions that may occur while in this mode: Low Power Mode: The mode in which the console is not being interactively manipulated by the user. The functions available in this mode are limited to the following: Standby Function: The console is plugged into a power source but is not providing any primary or secondary function and has no saved hardware state. The console has no active network link. This function must be available simultaneously with the Ready to Charge function. Networked Standby Function: The console is plugged into a power source and is providing one or more secondary functions that depend(s) upon the maintenance of a network connection beyond what is provided by the physical network layer. This function must be available simultaneously with the Ready to Charge function. Ready to Charge Function: The console is plugged into a power source and is not providing any primary function, but is ready to provide power to one or more accessories for the purpose of charging batteries (for example, through a USB connection). This function must be available simultaneously with Standby and Networked Standby functions.</p> <p>Appropriate power limit requirements should then be set for each of these functions in low power mode.</p>	<p>EPA is committed to harmonizing with European regulations in this product category and as such, the limitations of prior conceived regulation will have an impact on future voluntary efforts. EPA proposed a sleep state which would have provided adequate power allowances for charging devices and providing power enough for link detection on charging bus, but this proposal was rejected.</p>
25	Standby	<p>[Stakeholder] supports EPA's proposal of 0.5W for Standby mode when the product provides no function other than reactivation. However this power level does not enable consoles to keep USB ports active so that users can charge accessories from the console when it is in Standby mode.</p> <p>Charging accessories, such as controllers, in standby mode eliminates one reason why some users might disable APD: if the console can only charge when it is on, and it auto-powers down before the accessory is fully charged, then users can find their controllers not fully charged the next time they use the console.</p> <p>In addition, consoles that cannot charge from standby mode cannot trickle charge the accessories, maintaining them fully charged over time. While trickle charging uses a small amount of energy, this is much less than the energy wasted if APD is disabled. In order to enable charging from standby mode, consoles have to keep one or a small number of USB ports live in standby mode. This requires a small amount of extra power, of the order of 0.1-0.2W per port, which could be given as an adder for consoles that keep their USB ports live in standby.</p> <p>This small improvement to EPA's proposal could yield significant benefits by minimizing the number of users who will disable APD.</p>	

24	Standby	<p>EPA's Game Console Recognition Program should cover Networked Standby in its first version. This mode is already present in two of the three consoles currently on the market, is expected to be present and enabled by default on all next generation consoles, and is one of the highest energy consumptive modes in game consoles from an annual energy use perspective, drawing as much or in some cases more power than Game Play or Media Play when enabled.</p> <p>Networked Standby is defined as having the capability to wake-up from network events. However it also covers low-power active modes such as WiiConnect24 where the console maintains some background communications and processing capabilities and from which it does not auto-power down. When a low-power active mode is not capable of auto-powering down, it must meet either the networked or passive standby limits depending on whether it features network connectivity.</p> <p>The Wii Connect 24 mode, when activated, is currently responsible for approximately 70% of the console's annual energy use. Even in the current higher definition consoles such as the PS3, networked standby, when enabled, is the highest energy using mode (39%). We understand that networked standby is currently being addressed by an Ecodesign proceeding in the European Union. However the schedule and outcome of this proceeding are still uncertain. Given the large amount of energy use and savings potential, we strongly encourage EPA not to wait for the completion of the EU proceeding, and to set appropriate power limits for networked standby in the first version of its specification. We believe that a limit between 1W and 3W, slightly lower than the proposed Ecodesign mandatory 4W limit, is appropriate for a voluntary agreement.</p> <p>In the absence of a networked standby limit, we might continue to see levels like 6W (Wii 2012 model) or even 10-15W (PS3 2010 model), which translate roughly to 50-100 kWh/yr. This additional energy use related to network standby, the majority of which is being drawn when the device is not being used (even though APD is enabled) is equivalent to the annual energy use of two medium-sized Energy Star-qualified notebook computers.</p>	<p>EPA is aware of the energy consumption of consoles while in Networked Standby, however, because the mode is near regulatory completion in the EU, it is the desire of EPA to wait until this point. When this process is complete, EPA will take a serious look at adding Networked Standby into the program as an amendment to the recognition agreement.</p>
26	Game Play and Optical Disk Play	<p>A Game Play limit is not necessary at this time because Game Play power use is not much higher than other modes in current consoles, and is significantly lower than in high-end gaming personal computers (80-90W for game consoles vs. several hundred watts for high-end gaming computers). We might change our view if next generation consoles increase gaming power use to much higher levels.</p> <p>An Optical Disk Play limit is not a top priority because Optical Disk Play represents a lower portion of energy use than video streaming, and the power requirement for Streaming will naturally reduce power consumption for Optical Disk Play, since these two mode share many of the same functions.</p> <p>However, we encourage EPA to include "test and list" requirements for both modes and to cover these two modes in the test method. This is important for two reasons:</p> <ol style="list-style-type: none"> It will allow monitoring of power levels in these modes to assess progress or lack thereof over time and inform whether or not limits for these modes are needed in the future; It will inform consumers on the power use of the consoles in one of their primary mode, enabling consumer choice and creating a natural market incentive for manufacturers to limit it. 	

35	Game Play		<p>In its response to stakeholder comments, DOE states that "an active game play test would not be sufficiently repeatable nor would it yield results that are appropriate for comparison between devices or over time as different games draw different amounts of power. Due to these variations, any power measurement would not necessarily be representative of typical use."</p> <p>[Stakeholder] has sent to EPA and DOE a draft test procedure that addresses these concerns by defining the conditions that allow to minimize variability between test runs, and by including a process for selecting a reference test title that is sufficiently representative of typical use. We recognize that this test method still yields slightly higher variability than is typical for other electronic products. However given that the objective is not to verify compliance with a requirement, since the EPA specification does not set a limit for Game Play, but purely to monitor the market and inform users, we believe that the accuracy of our proposed test method is sufficient for the purposes of identifying trends and tracking whether Game Play power use is staying roughly flat, increasing or decreasing in a meaningful way for each company's consoles. Our test method as proposed is highly preferable to the lack of visibility caused by the current absence of any test method for Game Play.</p> <p>If DOE maintains its current position not to include Game Play in its test method, we encourage EPA to add Game Play to DOE's test method. This would be consistent with the agreement between EPA and DOE which prevents EPA from using different test procedures from DOE when they exist, but allows EPA to add testing requirements on top of DOE's test method. We encourage EPA to adopt a Game Play test procedure based on the draft procedure we proposed as a result of extensive testing in collaboration with industry. While our draft may need to be adjusted slightly, we believe that it constitutes a good enough test method for the purposes of this program.</p> <p>If EPA is concerned about impacting the timeline of the specification, we suggest finalizing the specification now with a requirement that Game Play power use be tested and reported per the test method that EPA issues within the next 3 months. During this period EPA could in consultation with stakeholders make further refinements to the test method we provided.</p>	<p>At this time, EPA & DOE believe a Game Play test would not be sufficiently repeatable nor would it yield results that are appropriate for comparison between devices as different games draw different power. Due to these variations, any power measurement would not necessarily be representative of typical use. Therefore, EPA & DOE will not include an active game play test in the Version 1.0 Test Method. There are currently multiple formats available for media-based optical disks, but neither EPA nor DOE is not aware of a format that is compatible with all major game consoles currently on the market. Additionally, the total energy consumption of this mode is low compared to the potential energy savings of from APD. For these reasons, EPA & DOE will not include a method for determining Optical Disk Play power consumption in the Version 1.0 Test Method.</p>
36	Optical Disk Media Play		<p>The test method in draft 3 does not measure power use by Optical Disk Media Play. While ideally we would like to include this mode in the test method in order to support a test and list requirement and enable monitoring, and regular assessment of the power use of this mode, we recognize that the usage is shifting from optical disk to streaming media, and in the interest of simplification and compromise, are agreeable to not include this mode in the test method.</p>	
27	Power Supply Efficiency Requirements		<p>EPA should reinstate power supply efficiency requirements to ensure that manufacturers design their products to use efficient power supplies, particularly in modes that are not covered by power limits such as Game Play. EPA removed power supply efficiency requirements from draft 3. [Stakeholder] is concerned by the lack of power supply efficiency requirement, especially for Game Play which is the highest power using mode and is not covered by power limits. When a mode is covered by power limits, it can be argued that the power supply efficiency requirement is redundant, however with no limit on Game Play, there is no incentive for manufacturers to utilize power supplies that are efficient at the loading point corresponding to Game Play.</p> <p>External power supplies (EPS) are already covered (Class A) or are expected to be covered (non Class A) by the upcoming revision to the DOE standard on external power supplies. This is not the case for internal power supplies (IPS) which are not regulated at all. Nothing prevents manufacturers from utilizing IPS's with sub-optimal efficiencies at higher load points in order to save a few cents on manufacturing costs. On the other hand, we are sensitive to industry's argument that the standard power supply metrics (80-PLUS for IPS, DOE test method for EPS) require manufacturers to optimize power supply efficiency at load levels which are not necessarily used by the console, leading to unnecessary costs that could be directly to more useful purposes. Taking this consideration into account, and given that power supply efficiency is already encouraged at lower load levels via the power limit for Navigation and Streaming, we propose the following power supply efficiency requirements:</p> <p>INTERNAL POWER SUPPLY: 88% at 50% load and 85% at 100% load The 50% and 100% load points focus on the Game Play range. The other 80-PLUS load point of 20% is not included to account for industry's concern. 88% and 85% efficiency requirements correspond to 80-PLUS SILVER</p> <p>EXTERNAL POWER SUPPLY: 88% at 50% load and 85% at 100% load Same levels as IPS's, since the multi-voltage EPS used by the Xbox 360 is an IPS packaged in an external case. Although game console EPS's may be covered by the upcoming DOE standards, the DOE standards use an average metric which is not optimal for game consoles. In addition they are not expected to come into effect until January 2015. It is also appropriate for EPA to require higher and more specific efficiency levels than generic mandatory federal standards.</p>	<p>ENERGY STAR promotes the best in class efficiency by providing incentives to OEMs to compete against each other using the technological advances that they believe will increase the efficiency of products in a manner most cost effective under the current test procedure. The current test procedure will penalize products with lower efficiency power supplies and rewards products with higher power supply efficiencies at standard operating loads. This appears to be an adequate incentive system for individual component efficiencies.</p>

28	User Information Requirements		We suggest that this information be included as part of the TV interface or as part of in-box documentation.	EPA does not preclude or suggest the method of notifying customers of information materials. EPA relies on the processes of the manufacturer to deliver the information in the best possible way to their customers. EPA only requires that they do so with the shipped item.
28	Standby Test Procedure		The intent of this requirement is to determine average power. A console may make power excursions of a period greater than five minutes could indicate a noncompliant average if the averaging period is only five minutes, depending on when the period starts and stops. However, provided the excursion ultimately averages out, the energy savings are the same regardless of the averaging period. In view of this, we ask that the words "a minimum of" be inserted as follows: ... Accumulate power values for a minimum of five minutes... The text from IEC 62301, Ed. 2.0, which is referenced under "Test Setup" of this document also allows for an open-ended average period as shown in clause 5.3.3, Average reading method: Select two comparison periods each made up of not less than 10 min duration (periods shall be approximately the same duration), noting the start time and duration of each period; - Determine the average power for each comparison period...	Sections 6.2, 6.3, 6.4, 6.5, and 6.6 of the Draft Final Test Method have been updated to reflect the requested change of an open-ended average period during standby testing.
33	Power Test Procedure		In Section 6.2.B, the test procedure calls for measuring power values for five minutes and recording the average value. However, a console may make power excursion of a period greater than five minutes, which could lead to a noncompliant average if the period is only five minutes. In view of this, we ask that the words "a minimum of" be inserted so that the section reads "[a]ccumulate power values for a minimum of five minutes."	
29	Auto Power Down		In Section 5.D, the test procedure should not specify that the technician is to verify that APD has happened exactly at the 60 minute point. The procedure should allow five minutes past the APD's commencement for the APD function to complete, before the absence of APD is noted or the power measurements are begun.	The suggested changes have been incorporated into sections 6.5 and 6.6 of the Draft Final Test Method so that, although the APD requirement for the Game Play and Video Stream Pause modes is still "within 1 hour", the tester must wait 65 minutes before measuring the average power consumption (the absence of APD is not separately noted).
30	Streaming Media Provider		In Section 5.E, any reference to a specific streaming media provider should be deleted so that the standard is appropriately generic and future-proof.	Section 6.4 of the Draft Final Test Method no longer contains the reference to a specific streaming media provider.
31	Game Software		In Section 5.F, the test procedure allows for "any game title" to be selected. While it may be possible to operate a next-generation console with a legacy game, the console may not support the APD function when playing a legacy game, which could cause a failure of the APD test. The game title selected for testing should be developed specifically for the console being tested.	Section 5F) of the Final Draft Test Method has been updated to exclude legacy game titles from being used for testing APD.
32	Test Records		In Section 6.1.A, the test procedure calls for recording the operating system name and version, processor type and speed, and total and available physical memory. In some circumstances in the video game industry, this information may be considered confidential. Further, while this information may be useful for PCs that run multiple operating systems, video game consoles run only proprietary software on hardware systems that allow little modification by the user. As a result, there is no need to record sensitive information in the test report.	It is important for EPA and DOE to be able to differentiate between models and successive hardware/software iterations. The reporting requirements proposed in Draft 3 in the Draft Final Test Method have been maintained.
37	Accessories		Draft 3 specifies that "All accessories shipped with the console that are required for operation, must be connected for the entirety of the test. For example, Motion and Position Sensing Input devices that are not required for operation need not be connected for testing". We understand that this excludes the energy used by accessories such as motion and position sensing input devices. EPA stated that its intent was to focus on the largest savings opportunity first, the console itself, and to monitor and address accessory efficiency in a future revision depending on the energy use and savings potential. [Stakeholder] agrees with this approach and encourages EPA to monitor closely the energy use of accessories of next generation consoles.	EPA & DOE appreciate the comment and support for the program.