



August 23, 2019

To: computers@energystar.gov

From: Information Technology Industry Council (ITI)

Re: Addendum to ITI comment on [Draft 2, Version 8.0 ENERGY STAR Computer specification](#) and [test method](#)

The Information Technology Industry Council (ITI) appreciates the opportunity to provide comments for EPA's ENERGY STAR® for Computers, v8 Draft 2 specification. We appreciate the opportunity to discuss our comments with EPA. Our last conversation gave us better clarity on EPA's position on Full network connectivity Option 2 incentives for systems with Alternative Low Power Modes (ALPM). We have now revised our proposal to address EPA's concern on potential increase in system TEC for ALPM systems receiving the proposed TEC incentives.

Full Network Connectivity

1. TEC Analysis of Desktops and Integrated Desktops (S3 sleep mode vs. Alternative Low Power Mode):

Introduction: EPA, based on prior stakeholder discussion, agreed to consider further incentivizing desktops PCs, with ALPM, to be able to reduce ALPM power down to a limit, that while challenging may be achievable. Industry had proposed such a limit be set at 3W instead of current 2W. Industry had proposed the same plan for integrated desktops. While integrated desktops use some of the notebook components the energy consumption and power management for integrated desktops is not a match for notebooks. The notebook power management is driven by mobile usages and battery life considerations, which is not the case for integrated desktop systems. Hence there is a need to provide integrated desktops incentives similar to desktops to further reduce integrated desktop power in ALPM mode. EPA in its Draft 2 of the specification, raised the Option 2 power limit from 2W to 2.5W to incentivize desktops PCs but no such incentives were provided for integrated desktops. During the follow-up webinar, EPA argued that 2.5W for desktops was based on analysis that any number above that limit (e.g. 3W) will reduce the energy savings potential for ALPM based systems when compared with S3 based desktop systems, and should not warrant an incentive higher than 2.5W. Regarding integrated desktop PCs, EPA contended that providing a similar allowance for integrated desktops would have an unintended consequence of increasing system TEC as compared to similar S3 based systems. EPA was open to industry analysis on this issue.

Analysis: Industry revised its analysis after ITI/EPA meeting on August 22. Using the Draft 2 dataset ITI conducted the analysis based on Draft 2 passing systems, to address the following:

- A. ALPM power needed to achieve S3 equivalent TEC – without Incentives
- B. ALPM power needed to achieve S3 equivalent TEC – with Incentives
- C. Summary/Recommendation

Full Network Connectivity - Option 2:

A. ALPM Power threshold without Incentive – (Breakeven Analysis)

Global Headquarters

1101 K Street NW, Suite 610
Washington, D.C. 20005, USA

+1 202-737-8888

Europe Office

Rue de la Loi 227
Brussels - 1040, Belgium

+32 (0)2-321-10-90

 info@itic.org

 itic.org

Average Values Per Category	Off (W)	Sleep (W)	Long Idle (W)	Short Idle (W)	TEC (S3) kWh	ALPM Power Value (W) to achieve same TEC as S3	TEC (ALPM) kWh
All Passing Systems (Average based on measured power)							
DT-ALL	0.52	1.3	14.4	15.4	58.7	3.65	58.7
Int DT ALL	0.39	1.2	10.0	21.6	71.0	2.85	71.0

Summary: The above assessment looks at the average of all passing systems that meet the Draft 2 TEC limits. The breakeven point is where S3 and ALPM systems have the same TEC. ALPM threshold at that point is 3.65W for DT systems and 2.85W for integrated desktop systems without incentives. The next section analyses ALPM power threshold required to become eligible for TEC incentives.

B. ALPM Power threshold with Incentive – (Breakeven Analysis)

Based on EPA input, Industry conducted analysis on incentives approach with the condition that any incentives will not increase net TEC of the system with ALPM vs. the S3 based system after TEC incentive is applied. With that in mind Industry first reduced the base TEC requirement by the percentage amount equal to the % incentive, and then determined the ALPM power threshold needed in the TEC equation, to achieve that TEC level, by keeping the same Short idle and Off state power. The ALPM system becomes eligible for an incentive if its ALPM power is equal to or below the established threshold. Once the TEC incentive is applied it will raise the base TEC level to the same level as the original S3 based system, with no net increase in system TEC as compared to similar S3 based systems. The table below provides that analysis using ENERGY STAR dataset of passing systems.

Average Values Per Category	Off (W)	Sleep (W)	Long Idle (W)	Short Idle (W)	TEC (S3) kWh	ALPM Power Value (W) to achieve same TEC as S3	TEC (ALPM) kWh
All Passing Systems (Average based on measured power)							
DT-ALL	0.52	1.3	14.4	15.4	58.7	3.65	58.7
ALPM Pwr needed to achieve S3 equivalent TEC (w/incentives)	With 12% incentive (58.7/1.12)				52.4	2.4	52.7
	With 6% incentive (58.7/1.06)				55.4	3.0	55.6
Int DT ALL	0.39	1.2	10.0	21.6	71.0	2.85	71.0
ALPM Pwr needed to achieve S3 equivalent TEC (w/incentives)	With 6% incentive (71.0/1.06)				67.0	2.0	66.9
	With 3% incentive (71.0/1.03)				68.9	2.4	68.9

Table 1: Option 2 – Proxy Incentives (ALPM)

Product Type	TEC Incentive	ALPM Power Limit (W)
Desktops	12%	≤ 2.5W
	6%	≤ 3.0W
Integrated Desktops	6%	≤ 2.0W
	3%	≤ 2.5W

C. Summary/Recommendation:

While the breakeven point where S3 and ALPM systems have the same TEC is 3.65W for DT systems and 2.85W for integrated desktop systems, industry is proposing an incentive based approach for manufacturers who can further reduce ALPM power. Industry recommendation is that incentives should scale with ALPM power reductions. In that, the manufacturers may initially take advantage of lower incentives, with ALPM power levels that are achievable and innovate over time to further reduce ALPM power thresholds. A single higher incentive approach would make it extremely difficult to take advantage of it in the near term due to very challenging ALPM power thresholds. This approach is similar to IPS and EPS efficiency incentives in concept. The above recommendation addresses EPA’s fundamental concern that any incentives should not increase the system TEC level over equivalent S3 based systems. Industry recommends to incorporate the above TEC proxy allowance approach. The above recommendation is for Full Network Connectivity Option 2 only, that require low ALPM power thresholds. For Full Network Connectivity Option 1, which does not address ALPM power thresholds Industry proposes to stay with 0.12 allowance approach for Desktops and Integrated Desktops. Industry is proposing no changes to Notebooks approach.

2. Full Network Connectivity Options and Allowances:

Summary: Since the TEC incentive framework for Desktops and Integrated Desktops is now different from Notebooks in ENERGY STAR Version 8, section (3.5.2), and sub-section (iii) need to be modified to address these changes. The current Draft 2 language under Option 1 and Option 2 is confusing and does not adequately address all the form factors. Industry is proposing to keep notebooks requirements for option 1 and option 2 unchanged (same and ENERGY STAR v7.1), while addressing the option 1 and option 2 changes for Desktops and Integrated Desktops separately.

Recommendations: Industry recommends that EPA adopt the following summary table in conjunction with current option 1 and option 2 definitions and simply reference this or a similar table for the requirements and TEC allowance approach per Table 1 above.

	Notebooks					Desktops/ Integrated Desktops		
	Option 1 (Full Network Connectivity)			Option 2		Option 1	Option 2	
Requirements	Base Capability	Remote Wake	Service Discovery/ Name Services	Full Capability	Constant network connectivity and Sleep or ALPM power ≤ 2W	(DT/Int DT) Full Capability	(Int DT) Constant network connectivity and Sleep or ALPM power threshold per Table 1	(DT) Constant network connectivity and Sleep or ALPM power threshold per Table 1

TEC Allowance Approach	Table 5 Mode Weightings	Table 5 Full Capability Mode Weightings	Proxy allowance of 0.12 in Equation 2	Proxy allowance per Table 1 above	Proxy allowance per Table 1 above			
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Sincerely,
Information Technology Industry Council
Washington DC, 20005
Office: 202-626-5729