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EPSMA feedback to the Revised Final Draft Energy Star External Power Supplies Eligibility Criteria (Version 2.0)

Based on the Revised Final Draft Energy Star External Power Supplies Eligibility Criteria (Version 2.0) and after analyzing the current external power supply products on the market and understanding the needs for improving the energy efficiency in the future products EPSMA would like to give the following statements and comments:

1) Low voltage limit to be set to 9.0V (or at least 8.0 V)

It is felt that the proposed definition by EPA is too stringent e.g. there is only a difference of 1% difference in the efficiency between a 24V/50W and a 5V/50W power supply.

Furthermore

Low voltage current limit (550 mA) to be removed

There is no unit in the dataset 5V/>15W that fulfils the announced requirements.

2) Product efficiency

i. Standard models ($V_{out} > 9V$)

1W to 49W: $\geq 0.075 \cdot \ln(P_o) + 0.569$

> 49W: ≥ 0.86

ii. Low Voltage models ($V_{out} < 9V$)

1W to 49W: $\geq 0.077 \cdot \ln(P_o) + 0.54$

> 49W: ≥ 0.84

The draft 2.0 efficiency requirements do not take into account any cabling. Since very often cabling is required by customer application, additional losses will appear by measuring efficiency at the end of the cabling. The proposed efficiency ratings by EPSMA take these additional losses into account. Especially in low voltage/high current applications the output cable losses are considerable high (e.g. 5V/10A output, cable length 1.8m, lead wire 4mm², lead resistance $R_{lead}=0.036\Omega$, Plug resistance of connector $R_{plug}=0.02\Omega$, total losses of cabling $P_c=3.61W$, which requires an efficiency of the power supply at the of the PWB of $\eta=92.2\%$).

3) Power factor

i. Power ranges over 100W: PF of min 0.9

The PF should be measured at 100W output power regardless the nameplate output power (i.e. up to 250W nominal output power the PF should be measured at 100W output). In this case any condition of output power equal to or greater than 100W and up

to 250W is covered by this standard. Also all power supplies not serving power factor by use of active current correction (i.e. passive PFC) are excluded from the Energy Star program.

4) No load power

i. 0W to 10W: max 300mW

ii. 10W to 250W: max 500mW

iii. In case the product has any signaling (LED or other) or other communication interface incorporated into the power supply: add + 150mW (i.e. 450mW and 650mW).

External power supplies for industrial or medical applications often require Power Good signalization (e.g. via LED) or even system communication (e.g. via CAN-Bus) which consume additional stand-by power that should be taken into account.

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