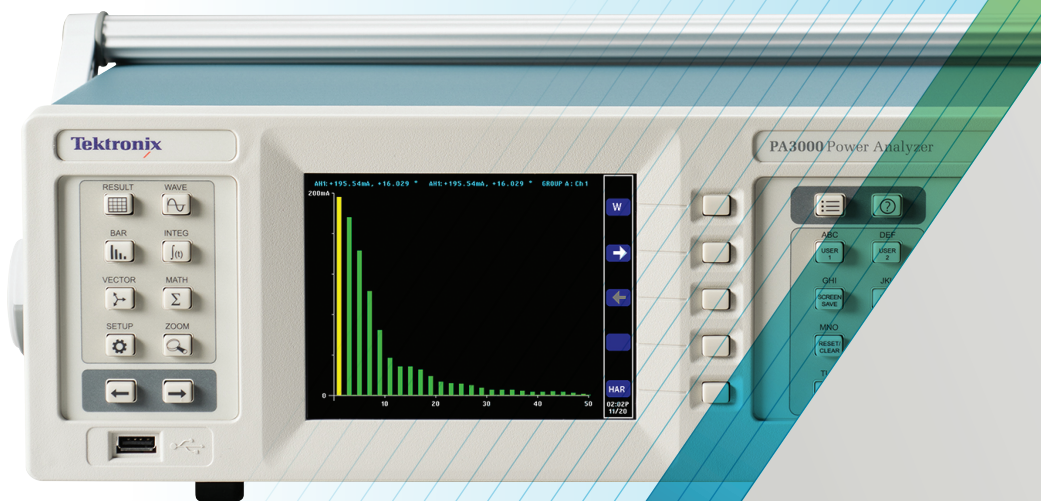


EFFICIENCY REQUIREMENTS

External Power Supplies (EPS) / AC Adapters

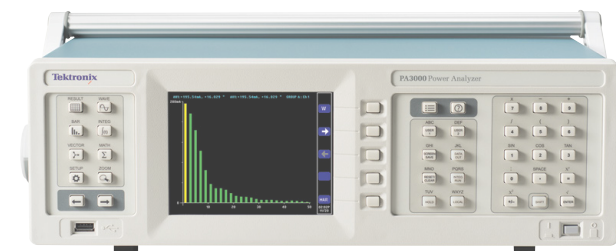
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EFFICIENCY REQUIREMENTS: External Power Supplies (EPS) / AC Adapters

	JURISDICTION	SUBCATEGORY	MINIMUM EFFICIENCY ^{% DECIMAL EQUIVALENT¹} Nameplate Output Power, P _O Watts					MAXIMUM NO-LOAD CONSUMPTION (WATTS) Nameplate Output Power, P _O Watts					TEST INPUT VOLTAGE	START DATE ²	EPS SCOPE ³	TEST METHOD
			0 ≤ P _O ≤ 1	1 < P _O ≤ 49	49 < P _O ≤ 51	51 < P _O ≤ 250	> 250	0 ≤ P _O < 10	10 ≤ P _O ≤ 49	49 < P _O < 50	50 ≤ P _O ≤ 51	51 < P _O ≤ 250				
INTERNATIONAL EFFICIENCY LEVEL III	AUSTRALIA / NEW ZEALAND Minimum Limit		0.49 * P _O	0.09 * ln(P _O) + 0.49	0.84			0.5 (AC-DC only)	0.75 (AC-DC only)				230V / 50Hz; or at 240V if exclusively so rated	01 Dec 2008 (AUS) 01 Dec 2009 (NZ)	AC-AC and AC-DC	AS/NZS 4665.1-2005 +A1-2009
INTERNATIONAL EFFICIENCY LEVEL IV	AUSTRALIA / NEW ZEALAND Optional High Limit						0.5 (AC-DC only)						230V / 50Hz; or at 240V if exclusively so rated	01 Dec 2008 (AUS) 01 Dec 2009 (NZ)	AC-AC and AC-DC	AS/NZS 4665.1-2005 +A1-2009
	CALIFORNIA Phase 2	State-regulated EPS units	0.5 * P _O	0.09 * ln(P _O) + 0.5	0.85		0.5						115V / 60Hz	01 Jul 2009	AC-AC and AC-DC	Test Method for Calculating the Energy Efficiency of Single-Voltage External AC-DC and AC-AC Power Supplies (Published by the EPA: August 11, 2004.)
	CANADA MEPS						0.5						115V / 60Hz	12 Apr 2012	AC-AC and AC-DC	CSA-C381.1-083: Upd.No1 Test Method for Calculating the Energy Efficiency of Single-Voltage External AC-DC and AC-AC Power Supplies
	CHINA Minimum Limits						0.5 (AC-DC only)						115V / 60Hz and 230V / 50 Hz or 220V / 50 Hz if single-rated	01 Sep 2014	AC-AC and AC-DC with output ≤ 36V	- GB 20943-2013 - CQC31-461236-2014
INTERNATIONAL EFFICIENCY LEVEL V	AUSTRALIA / NEW ZEALAND Optional High Efficiency Mark V	Low Voltage ⁴	0.497 * P _O + 0.067	0.0750 * ln(P _O) + 0.561	0.860		0.3 (AC-DC only)		0.5 (AC-DC only)				230V / 50Hz; or at 240V if exclusively so rated	01 Dec 2008 (AUS) 01 Dec 2009 (NZ)	AC-AC and AC-DC	AS/NZS 4665.1-2005 +A1-2009
		Other than Low Voltage ⁴	0.480 * P _O + 0.140	0.0626 * ln(P _O) + 0.622	0.870		0.3 (AC-DC) 0.5 (AC-AC)									
	EUROPE / SWISS PHASE 2 EUROPEAN ErP Directive / SWISS ENERGY Ordinance / TURKEY	Low Voltage ⁴	0.497 * P _O + 0.067	0.0750 * ln(P _O) + 0.561	0.860		0.3			0.5			230V / 50Hz	27 Apr 2011 (EUR) 01 May 2011 (CHE) 27 Aug 2011 (TUR)	Specified home / office products	- EN 50563:2011 - Commission Regulation (EC) NO 278/2009 of 06 Apr 2009: ANNEX I
		Other than Low Voltage ⁴	0.480 * P _O + 0.140	0.063 * ln(P _O) + 0.622	0.870		0.30 (AC-DC) 0.50 (AC-AC)									
INTERNATIONAL EFFICIENCY LEVEL VI	INTERNATIONAL EFFICIENCY LEVEL VI Single Voltage	Low Voltage ⁴	0.517 * P _O + 0.087	0.0834 * ln(P _O) - 0.0014 * P _O + 0.609	0.87	0.875	0.100 (AC-DC) 0.210 (AC-AC)		0.21			0.500	115V / 60Hz	10 Feb 2016	AC-AC and AC-DC	Title 10 of the U.S. Code of Federal Regulations, Appendix Z to Subpart B of Part 430.
		Other than Low Voltage ⁴	0.5 * P _O + 0.16	0.071 * ln(P _O) - 0.0014 * P _O + 0.67	0.88	0.875										
	INTERNATIONAL EFFICIENCY LEVEL VI Multiple Voltage		0.497 * P _O + 0.067	0.075 * ln(P _O) + 0.561	0.86		0.30									

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INFORMATION IS FOR QUICK REFERENCE ONLY AND SUBJECT TO CHANGE BASED ON CHANGES IN STANDARDS AND REGULATIONS. REFER TO LOCAL STANDARDS AND REGULATIONS FOR THE LATEST TEST REQUIREMENTS.

- "ln" refers to the natural logarithm in the efficiency calculations below.
- Effective Date: Non-compliant external power supplies provided as an identical replacement service part for associated products that were manufactured prior to the mandatory date may in some cases be offered for a limited time (e.g. 5 - 7 years).
- Scope definitions are not fully harmonized across the various jurisdictions and specific exemption cases need to be examined.
- Low voltage external power supply⁴ means an external power supply with a nameplate output voltage of less than 6 volts and a nameplate output current greater than or equal to 550 milliamperes.

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