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检测  
TESTING  
CNAS L3110



# TEST REPORT

**Reference No**..... : WTF26D01025461N  
**Applicant**..... : Mid Ocean Brands B.V.  
**Address** ..... : Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.  
**Manufacturer**..... : 114538  
**Address** ..... : 114538  
**Product**..... : EU 2-pole wall adapter/charger  
**Model(s)**..... : MO2979  
**Serial Number**..... : N/A  
**Brand**..... : MOB  
**Ratings**..... : Input: AC110-240V~, 50/60Hz, 1.5A Max.  
Output: TYPE-C: 5.0V=== 3.0A, 9.0V=== 3.0A, 12.0V=== 3.0A,  
15.0V=== 3.0A, 20.0V=== 3.25A, 65.0W MAX  
USB-A: 5.0V=== 3.0A, 9.0V=== 2.0A, 12.0V=== 1.5A, 18.0W MAX  
TYPE-C+USB-A: PD45.0W+QC18.0W  
**Total pages**..... : 16 pages  
**Standards**..... : EN 50563:2011+A1:2013, EN 50564:2011  
**Sample Plan**..... : COMMISSION REGULATION (EU) 2019/1782  
implementing Directive 2009/125/EC of the European Parliament and  
of the Council with regard to ecodesign requirements for no-load  
condition electric power consumption and average active efficiency of  
external power supplies  
**Test Category**..... : Entrusted Test  
**Date of Receipt sample**..... : 2026-01-29  
**Date of Test**..... : 2026-02-03  
**Date of Issue**..... : 2026-03-03  
**Test Result**..... : Pass  
**Conclusion**..... : The submitted samples comply with the above procedure

**Remarks:**

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

**Prepared By:**

**Waltek Testing Group Co., Ltd.**

Address: No.77, Houjie Section, Guantai Road., Houjie Town, Dongguan City,  
Guangdong, China  
Tel: +86-769-2267 6998  
Fax: +86-769-2267 6828

Compiled by:

*Glen Luo*

Glen Luo / Project Engineer

Approved by:

*Deval Qin*

Deval Qin / Designated Reviewer

Waltek Testing Group Co., Ltd.

<http://www.waltek.com.cn>

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## Energy Test Instruction for no-load condition electric power consumption and average active efficiency of external power supplies

### Definitions:

EUT – equipment under test;

No-load condition – the condition in which the input of an external power supply is connected to the mains power source, but the output is not connected to any primary load;

Active mode – a condition in which the input of an external power supply is connected to the mains power source and the output is connected to a load;

Active mode efficiency – the ratio of the power produced by an external power supply in active mode, to the input power required to produce it;

Average active efficiency – the average of the active mode efficiencies at 25%, 50%, 75% and 100% of the nameplate output power.

### General conditions for measurements:

<b>Test condition parameter:</b>	
Air speed close to the EUT	$\leq 0.5\text{m/s}$
Ambient temperature	$23^{\circ}\text{C}\pm 5^{\circ}\text{C}$
Humidity:	70%RH
Test voltage and frequency	$115\text{V}\pm 1\%/60\text{Hz}\pm 1\%$ and $230\text{V}\pm 1\%/50\text{Hz}\pm 1\%$
Total harmonic content of the test voltage at the EUT	$\leq 2\%$ (up to and including the 13th harmonic)
Crest factor of test voltage	1.34 – 1.49
Power measurement accuracy	$\leq 2\%$ (power $\geq 0.5\text{W}$ ) $\leq 0.01\text{W}$ (power $< 0.5\text{W}$ )
Resolution of power meter	0.01W
<b>Remark:</b>	
1. When determining for test conclusion, measurement uncertainty of tests has been considered.	
2. Measurements of power of 0.50W or greater was made with an uncertainty of less than or equal to 2% at the 95% confidence level.	
3. Measurements of power of less than 0.50W was made with an uncertainty of less than or equal to 0.01W at the 95% confidence level.	

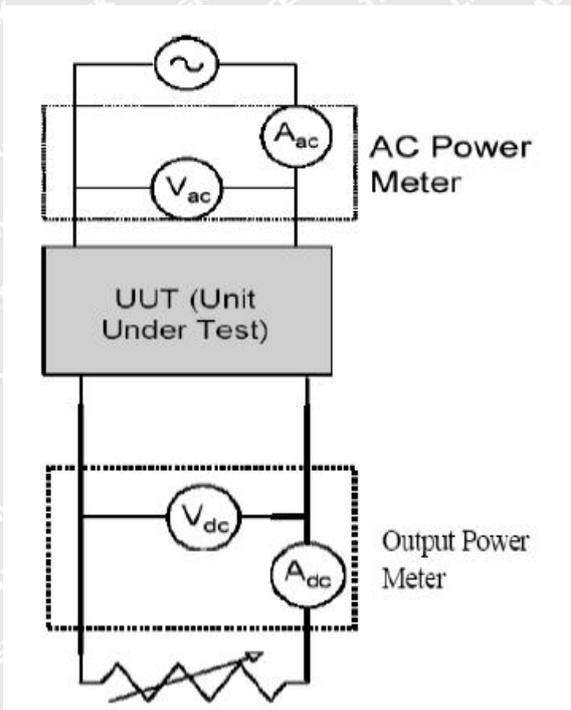


## Preparation of EUT & Measuring equipment

### EUT preparation:

The EUT shall be operated at 100% of nameplate current output for at least 30 minutes immediately prior to conducting efficiency measurements.

### Measuring equipment preparation:



### Procedure:

Monitor ac input power for a period of 5 minutes to assess the stability of the EUT. If the power level does not drift by more than 5% from the maximum value observed, the EUT can be considered stable and the measurements can be recorded at the end of the 5 minute period. Subsequent load conditions (see below) can then be measured under the same 5 minute stability guidelines.

If ac input power is not stable over a 5 minute period, connect the EUT to the metering equipment and select the mode to be measured. Monitor the power. Average power is determined using either the average power or accumulated energy approaches outlined below.

**a) Average power approach:** where the power meter can record a true average power over a user selected period, the period selected shall not be less than 5 min (except if there is an operating cycle – see below).

**b) Accumulated energy approach:** where the power meter can accumulate energy over a user selected



period, the period selected shall not be less than 5 min (except if there is an operating cycle – see below). The integrating period shall be such that the total recorded value for energy and time is more than 200 times the resolution of the meter for energy and time. Determine the average power by dividing the accumulated energy by the time for the monitoring period.

If the power varies over a cycle (i.e. a regular sequence of power states that occur over several minutes or hours), the period selected to average power or accumulate energy shall be one or more complete cycles in order to get a representative average value.

Efficiency measurements shall be conducted in sequence from Load Condition 1 to Load Condition 5 as indicated in follow table.

Percentage of Nameplate Output Current	
Load Condition 1	100%±2%
Load Condition 2	75%±2%
Load Condition 3	50%±2%
Load Condition 4	25%±2%
Load Condition 5	10%±2%
Load Condition 6	0%

#### Product Information:

Model:	MO2979
Product Powered (if known):	Unknown
Integral Input Power Switch	Not present
Input Cord Length (cm)	Not present
Output Cord Length (cm)	Test with 10cm, 20AWG
Model Differences	N/A

Nameplate Specifications	Input (AC)	Output (DC)		
		TYPE-C	USB-A	TYPE-C+USB-A
<b>Voltage (V)</b>	110-240	5.0/9.0/12.0/15.0/20.0	5.0/9.0/12.0	15.0+12.0
<b>Current (A)</b>	1.5	3.0/3.0/3.0/3.0/3.25	3.0/2.0/1.5	3.0+1.5
<b>Power (W)</b>	Not Stated	15.0/27.0/36.0/45.0/65.0	15.0/18.0/18.0	45.0+18.0
<b>Frequency (Hz)</b>	50/60	DC		

**Measured and Calculated Data at 115V 60Hz (TYPE-C: 5.0VDC, 3.0A)**

	No Load		Active Power Values			
	0%	10%	25%	50%	75%	100%
Percent of Nameplate Current	0%	10%	25%	50%	75%	100%
Output Current (mA)	0	300	750	1500	2250	3000
Output Voltage (V)	5.178	5.151	5.116	5.057	4.997	4.935
Output Power (W)	0	1.545	3.837	7.586	11.243	14.805

Input Voltage (V)	115	115	115	115	115	115
Input Power (W)	0.233	1.816	4.363	8.580	12.910	17.290
Total Harmonic Distortion (THD)A%	16.91	153.74	194.50	190.10	179.83	172.73
Total Harmonic Distortion (THD)V%	0.19%	0.25%	0.39%	0.65%	0.88%	1.09%
True Power Factor (W/VA)	0.037	0.325	0.404	0.448	0.474	0.492
Input Frequency	60	60	60	60	60	60

Power Consumed by EUT (W)	0.233	0.271	0.526	0.994	1.667	2.485
Efficiency		85.09%	87.94%	88.41%	87.09%	85.63%
Average Efficiency				87.27%		

**Measured and Calculated Data at 230V 50Hz (TYPE-C: 5.0VDC, 3.0A)**

	No Load		Active Power Values			
	0%	10%	25%	50%	75%	100%
<b>Percent of Nameplate Current</b>	0%	10%	25%	50%	75%	100%
<b>Output Current (mA)</b>	0	300	750	1500	2250	3000
<b>Output Voltage (V)</b>	5.170	5.145	5.107	5.040	4.975	4.902
<b>Output Power (W)</b>	0	1.544	3.830	7.560	11.194	14.706

<b>Input Voltage (V)</b>	<b>230</b>	<b>230</b>	<b>230</b>	<b>230</b>	<b>230</b>	<b>230</b>
<b>Input Power (W)</b>	0.258	1.860	4.490	8.750	13.020	17.360
<b>Total Harmonic Distortion (THD)A%</b>	36.45	88.07	159.27	200.45	212.86	241.15
<b>Total Harmonic Distortion (THD)V%</b>	0.34%	0.35%	0.36%	0.37%	0.39%	0.40%
<b>True Power Factor (W/VA)</b>	0.006	0.062	0.128	0.198	0.243	0.272
<b>Input Frequency</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>

<b>Power Consumed by EUT (W)</b>	0.258	0.317	0.660	1.190	1.826	2.654
<b>Efficiency</b>		82.98%	85.31%	86.40%	85.97%	84.71%
<b>Average Efficiency</b>				85.60%		

**Measured and Calculated Data at 115V 60Hz (TYPE-C: 20.0VDC, 3.25A)**

	No Load		Active Power Values			
Percent of Nameplate Current	0%	10%	25%	50%	75%	100%
Output Current (mA)	0	325	812.5	1625	2437.5	3250
Output Voltage (V)	20.010	19.980	19.809	19.860	19.790	19.710
Output Power (W)	0	6.494	16.095	32.273	48.238	64.058

Input Voltage (V)	115	115	115	115	115	115
Input Power (W)	0.234	7.750	18.040	35.480	52.910	70.690
Total Harmonic Distortion (THD)A%	56.01	192.96	171.68	153.27	141.96	134.06
Total Harmonic Distortion (THD)V%	0.17%	0.60%	1.12%	1.87%	2.57%	3.16%
True Power Factor (W/VA)	0.170	0.439	0.494	0.534	0.559	0.574
Input Frequency	60	60	60	60	60	60

Power Consumed by EUT (W)	0.234	1.257	1.945	3.208	4.672	6.632
Efficiency		83.79%	89.22%	90.96%	91.17%	90.62%
Average Efficiency				90.49%		

**Measured and Calculated Data at 230V 50Hz (TYPE-C: 20.0VDC, 3.25A)**

	No Load		Active Power Values			
Percent of Nameplate Current	0%	10%	25%	50%	75%	100%
Output Current (mA)	0	325	813	1625	2438	3250
Output Voltage (V)	20.000	19.970	19.940	19.860	19.800	19.750
Output Power (W)	0	6.490	16.201	32.273	48.263	64.188

Input Voltage (V)	230	230	230	230	230	230
Input Power (W)	0.257	7.850	18.070	35.340	52.840	70.130
Total Harmonic Distortion (THD)A%	49.56	203.93	219.79	216.21	206.15	195.89
Total Harmonic Distortion (THD)V%	0.38%	0.35%	0.36%	0.37%	0.39%	0.47%
True Power Factor (W/VA)	0.021	0.179	0.274	0.348	0.388	0.412
Input Frequency	50	50	50	50	50	50

Power Consumed by EUT (W)	0.257	1.360	1.869	3.068	4.578	5.943
Efficiency		82.68%	89.66%	91.32%	91.34%	91.53%
Average Efficiency				90.96%		

**Measured and Calculated Data at 115V 60Hz (TYPE-C+USB-A: 15.0VDC, 3.0A + 12.0VDC, 1.5A)**

	No Load		Active Power Values			
Percent of Nameplate Current	0%	10%	25%	50%	75%	100%
Output Current (mA)1	0	300	750	1500	2250	3000
Output Current (mA)2	0	150	375	750	1125	1500
Output Voltage (V)1	15.000	14.980	14.940	14.860	14.800	14.740
Output Voltage (V)2	11.882	11.858	11.829	11.788	11.781	11.769
Output Power (W)1	0	4.494	11.205	22.290	33.300	44.220
Output Power (W)2	0	1.779	4.436	8.841	13.254	17.654

Input Voltage (V)	115	115	115	115	115	115
Input Power (W)	0.233	7.501	17.650	34.690	51.870	69.440
Total Harmonic Distortion (THD)A%	56.58	189.83	162.86	152.79	1.00	135.36
Total Harmonic Distortion (THD)V%	0.34%	0.76%	1.25%	1.81%	2.48%	3.14%
True Power Factor (W/VA)	0.147	0.456	0.514	0.536	0.556	0.571
Input Frequency	60	60	60	60	60	60

Power Consumed by EUT (W)	0.233	1.228	2.009	3.559	5.316	7.567
Efficiency		83.62%	88.62%	89.74%	89.75%	89.10%
Average Efficiency				89.30%		

**Measured and Calculated Data at 230V 50Hz (TYPE-C+USB-A: 15.0VDC, 3.0A + 12.0VDC, 1.5A)**

	No Load		Active Power Values			
Percent of Nameplate Current	0%	10%	25%	50%	75%	100%
Output Current (mA)1	0	300	750	1500	2250	3000
Output Current (mA)2	0	150	375	750	1125	1500
Output Voltage (V)1	14.990	14.970	14.930	14.880	14.800	14.790
Output Voltage (V)2	11.874	11.764	11.650	11.640	11.630	11.774
Output Power (W)1	0	4.491	11.198	22.320	33.300	44.370
Output Power (W)2	0	1.765	4.369	8.730	13.084	17.661

Input Voltage (V)	230	230	230	230	230	230
Input Power (W)	0.258	7.530	17.660	34.650	51.640	69.120
Total Harmonic Distortion (THD)A%	62.68	181.64	224.72	221.59	201.03	196.10
Total Harmonic Distortion (THD)V%	0.21%	0.28%	0.29%	0.32%	0.37%	0.40%
True Power Factor (W/VA)	0.018	0.182	0.275	0.345	0.386	0.414
Input Frequency	50	50	50	50	50	50

Power Consumed by EUT (W)	0.258	1.274	2.094	3.600	5.256	7.089
Efficiency		83.08%	88.14%	89.61%	89.82%	89.74%
Average Efficiency				89.33%		

**Result:**

The samples submitted were tested and comply with the efficiency in the active mode and the energy consumption in the no-load mode at the corresponding national AC mains supply voltage according to following regulations:

<input checked="" type="checkbox"/>	EU Energy-related Products (ErP) directive COMMISSION REGULATION (EU) 2019/1782 of 1 October 2019
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And the use of an efficiency mark, according to the international efficiency marking protocol, qualified with efficiency marking:  VI

Details of Minimum Efficiency Performance Standard (MEPS) refer to following table

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**EU Energy-related Products (ErP) directive**

**Ecodesign requirements**

set out in Annex II, 1 a) & b) of COMMISSION REGULATION (EU) 2019/1782 for no-load electric power consumption and average active efficiency of external power supplies

<b>Single-Voltage External AC-DC or AC-AC Power Adapter, Basic-Voltage</b>			
<b>Nameplate Output Power (Pno)</b>	<b>Minimum Average Efficiency in Active Mode</b>	<b>Verdict</b>	
≤ 1W	$\geq 0.5 \times P_{no} + 0.16$	N/A	
1 W < to ≤ 49 W	$\geq 0.071 \times \ln(P_{no}) - 0.0014 \times P_{no} + 0.67$	N/A	
49W < to ≤ 250W	$\geq 0.880$	N/A	
<b>Nameplate Output Power (Pno)</b>	<b>Maximum Power in No-Load Mode</b>		<b>Verdict</b>
	<input type="checkbox"/> <b>Ac-Ac EPS</b>	<input type="checkbox"/> <b>Ac-Dc EPS</b>	
≤ 49 W	≤ 0.21W	≤ 0.10W	N/A
49W < to ≤ 250W	≤ 0.21W		N/A

<b>Single-Voltage External AC-DC or AC-AC Power Adapter, Low-Voltage</b>			
<b>Nameplate Output Power (Pno)</b>	<b>Minimum Average Efficiency in Active Mode</b>	<b>Verdict</b>	
≤ 1W	$\geq 0.517 \times P_{no} + 0.087$	N/A	
1 W < to ≤ 49 W	$\geq 0.0834 \times \ln(P_{no}) - 0.0014 \times P_{no} + 0.609$	N/A	
49W < to ≤ 250W	$\geq 0.870$	N/A	
<b>Nameplate Output Power (Pno)</b>	<b>Maximum Power in No-Load Mode</b>		<b>Verdict</b>
	<input type="checkbox"/> <b>Ac-Ac EPS</b>	<input type="checkbox"/> <b>Ac-Dc EPS</b>	
≤ 49 W	≤ 0.10W	≤ 0.10W	N/A
49W < to ≤ 250W	≤ 0.21W		N/A

<b>Multiple-Voltage</b>		
<b>Nameplate Output Power (Pno)</b>	<b>Minimum Average Efficiency in Active Mode</b>	<b>Verdict</b>
0 to ≤ 1 W	$\geq 0.497 * P_{no} + 0.067$	N/A
1 to ≤ 49 W	$\geq 0.075 * \ln(P_{no}) + 0.561$	P



49 W	$\geq 0.860$	P
<b>Nameplate Output Power (Pno)</b>	<b>Maximum Power in No-Load Mode</b>	<b>Verdict</b>
Any	$\leq 0.30$	P

**Notes:**

For model MO2979 with output rating of DC TYPE-C: 5.0VDC, 3.0A, 15.0W, required minimum average active efficiency limit is 76.42%, the minimum average active efficiency from the tested sample is 85.60%; Limit for no load power is 0.3W, the maximum no load power tested sample is 0.258 W.

The minimum active efficiency at 10 % load of full rated output current from the tested sample is 82.98%.

For model MO2979 with output rating of DC TYPE-C: 20.0VDC, 3.25A, 65.0W, required minimum average active efficiency limit is 86.00%, the minimum average active efficiency from the tested sample is 90.49%; Limit for no load power is 0.3W, the maximum no load power tested sample is 0.257W.

The minimum active efficiency at 10 % load of full rated output current from the tested sample is 82.68%.

For model MO2979 with output rating of DC TYPE-C+ USB-A: 15.0VDC, 3.0A + 12.0VDC, 1.5A, 63.0W, required minimum average active efficiency limit is 86.00%, the minimum average active efficiency from the tested sample is 89.30%; Limit for no load power is 0.3W, the maximum no load power tested sample is 0.258W.

The minimum active efficiency at 10 % load of full rated output current from the tested sample is 83.08%.

**Supplementary information to test procedure for multiple-voltage:**

According to Annex II, 3 Measurements and calculations of COMMISSION REGULATION (EU) 2019/1782 For the purposes of compliance and verification of compliance with the requirements of this Regulation, measurements and calculations shall be made using harmonised standards the reference numbers of which have been published for this purpose in the Official Journal of the European Union, or other reliable, accurate and reproducible methods, which take into account the generally recognised state of the art.



**Test Equipment List:**

<u>Equipment</u>	<u>Model/Type</u>	<u>Measurement</u>	<u>Cal. Date</u>	<u>Valid Date</u>
Digital Power Meter	WT310	No load and active output	2025-07-18	2026-07-17
DC electronic load	M9710	No load and active output	2025-04-30	2026-04-29
Timer	TF307	No load and active output	2025-04-28	2026-04-27
Temperature and humidity meter	JR602	No load and active output	2025-05-14	2026-05-13
steel measure tape	MEI GAO	No load and active output	2025-04-28	2026-04-27
Variable frequency stabilized power supply	APW-110N	No load and active output	2025-05-11	2026-05-10

**Ambient Temperature and Humidity:**

Temperature: 24.5°C

Humidity: 59.8%RH



**Photo and Label of Product**



Model: MO2979



Model: MO2979



**Photo and Label of Product**

MOB/MO2979

PO BOX 644,  
6710BP(NL)

PO:41-117967

Made in China

www.momanual.com

Input:AC110-240V 50/60Hz 1.5A Max

Output:TYPE-C:5.0V $\approx$ 3.0A,9.0V $\approx$ 3.0A,12.0V $\approx$ 3.0A

15.0V $\approx$ 3.0A,20.0V $\approx$ 3.25A,65.0W MAX

USB-A:5.0V $\approx$ 3.0A,9.0V $\approx$ 2.0A,12.0V $\approx$ 1.5A,18.0W MAX

TYPE-C+USBA: PD45.0W+QC18.0W



Model: MO2979

===== End of Report =====

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