




TEST REPORT PPP 10059A:2019 TUV SUD Test Report for ErP – External Power Supply Ecodesign requirements for no-load condition electric power consumption and average active efficiency Implementation Measure EC Regulation (EU) 2019/1782	
Report No.:	48.420.19.1923.01
Date of issue:	2022-11-25
Project handler:	Yang YANG
Testing laboratory:	TÜV SÜD Certification and Testing (China) Co., Ltd
Address:	10 Huaxia Road(m), Dongting, Wuxi, Jiangsu province, 214100, P.R.China
Testing location:	as above
Client:	Etman Electric(Changzhou)Co.,Ltd.
Client number:	099070
Address:	6 Miaoban Road, Lijia District, 213165 Changzhou, Jiangsu Prov. PEOPLE'S REPUBLIC OF CHINA
Contact person:	Ma Zhen
Standard:	This TÜV SÜD test program is based on the following standards: (EU) 2019/1782 Test Method: EN 50563:2011+A1:2013 10 CFR 430 Appendix Z: 2015
TRF number and revision:	PPP 10059A:2019 Rev. 01:2019-11
TRF originated by:	TÜV SÜD Product Service GmbH, Mr. Andy Tong
Copyright blank test report:	This test report is based on the content of the standard (see above). The test report considered selected clauses of the a.m. standard(s) and experience gained with product testing. It was prepared by TUV SUD Product Service. TUV SUD Group takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.
General disclaimer:	This test report may only be quoted in full. Any use for advertising purposes must be granted in writing. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production.
Scheme:	<input type="checkbox"/> TÜV Mark, <input type="checkbox"/> EU-Directive, <input checked="" type="checkbox"/> without certification
Non-standard test method:	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, see details under Summary of testing
National deviations:	None
Number of pages (Report):	15
Number of pages (Attachments):	N/A



Compiled by:	Yang YANG <i>(Printed Name and Signature)</i>
Approved by:	Bin LI <i>(Printed Name and Signature)</i>

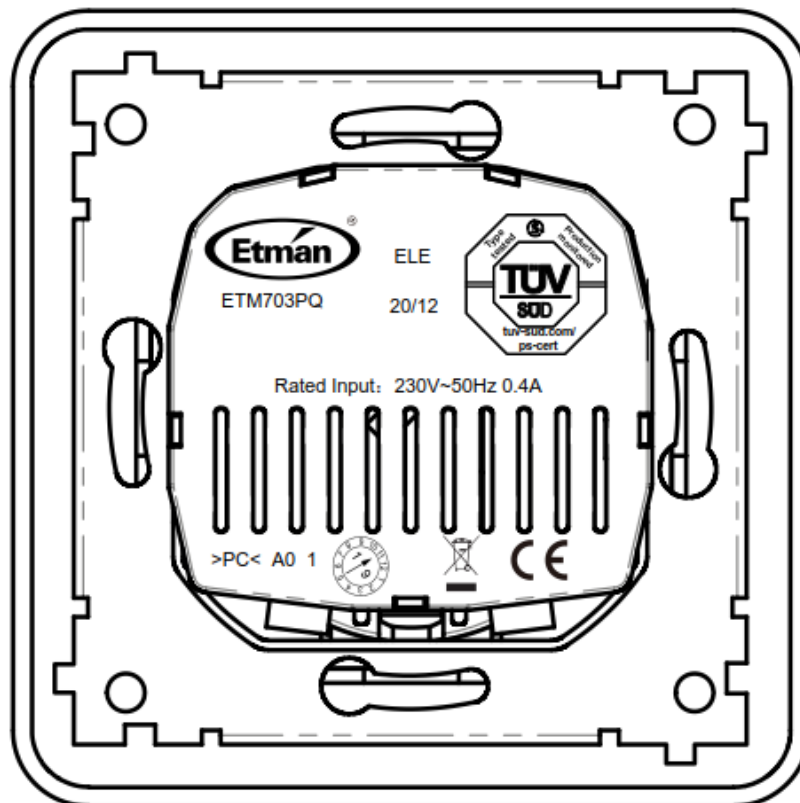
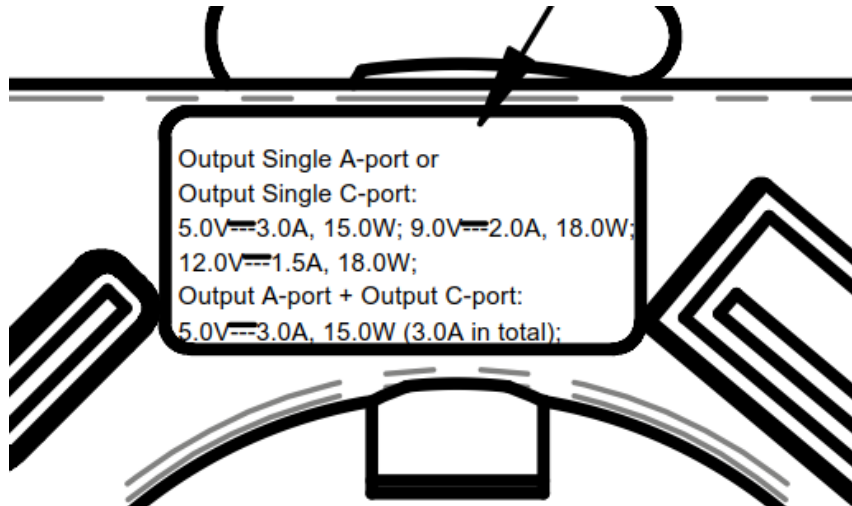


Test sample:	1 pre-production sample
Type of test object:	SO with 2USB ports
Trademark:	
Model and/or type reference:	ETM703PQ, ETM703BQ, ETM703UQ, ETM703XQ, ETM703EQ, B703Q, U703Q, E703Q
Rating(s):	Input: 230VAC, 50/60Hz, 0.4A Output Single A-port: 5.0VDC, 3.0A, 15.0W; 9.0VDC, 2.0A, 18.0W; 12.0VDC, 1.5A, 18.0W; Output Single C-port: 5.0VDC, 3.0A, 15.0W; 9.0VDC, 2.0A, 18.0W; 12.0VDC, 1.5A, 18.0W; Output A-port + Output C-port: 5.0VDC, 3.0A, 15.0W (3.0A in total)
Manufacturer:	Same as client
Manufacturer number:	Same as client
Address:	Same as client
Sub-contractors/ tests (clause):	N/A
Name:	N/A
Order description:	<input checked="" type="checkbox"/> Complete test according to TRF
	<input type="checkbox"/> Partial test according to manufacturer's specifications
	<input type="checkbox"/> Preliminary test
	<input type="checkbox"/> Spot check
	<input type="checkbox"/> Others:
Date of order:	2019-11-19, 2022-11-22
Date of receipt of test item:	2019-11-19, 2022-11-22
Date(s) of performance of test:	2020-02-20, 2022-11-23
Test item particulars:	
Name plate power output (Po):	Output Single A-port: 5.0VDC, 3.0A, 15.0W; 9.0VDC, 2.0A, 18.0W; 12.0VDC, 1.5A, 18.0W; Output Single C-port: 5.0VDC, 3.0A, 15.0W; 9.0VDC, 2.0A, 18.0W; 12.0VDC, 1.5A, 18.0W; Output A-port + Output C-port: 5.0VDC, 3.0A, 15.0W (3.0A in total)
Declared No-load power consumption:	0.10W
Declared Average active efficiency:	81.4%



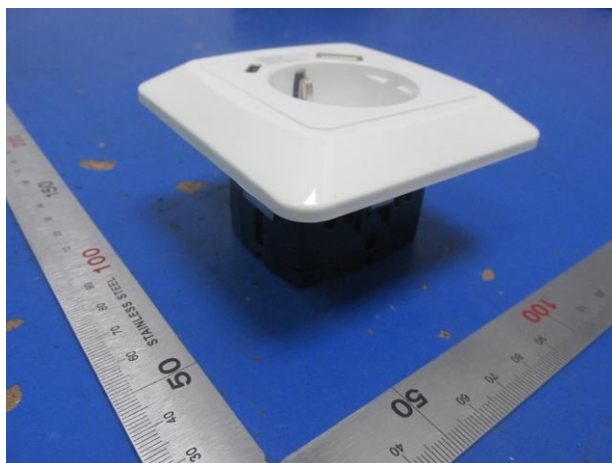
Declared Efficiency at load 10%:	72.1%
Built-in ON/OFF switch :	N/A
Output :	Fixed
Type of power supply:	<input type="checkbox"/> Multiple-voltage external power supply <input checked="" type="checkbox"/> Single-voltage external power supply

Copy of marking plate:

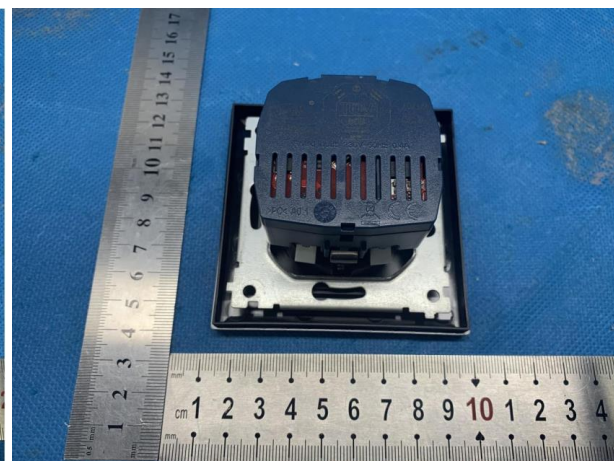
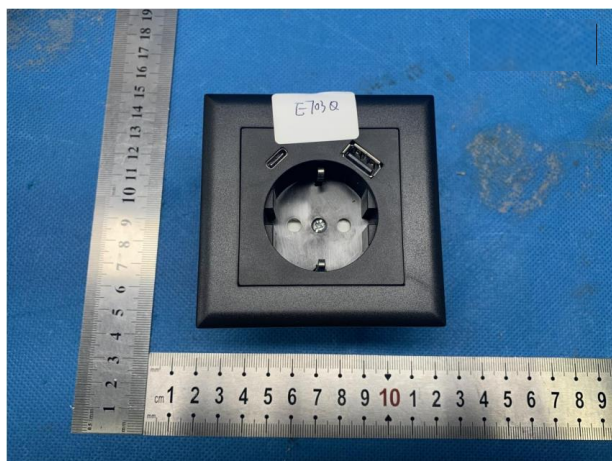


Picture of the product:

Model: ETM703BQ



Model: E703Q



Name and address of factory (ies) (only if certification is provided):

Etman Electric(Changzhou)Co.,Ltd.

6 Miaoban Road, Lijia District 213165 Changzhou, Jiangsu Prov. PEOPLE'S REPUBLIC OF CHINA

Possible test case verdicts:

test case does not apply to the test object: N/A (not applicable / not included in the order)

test object does meet the requirement: P (Pass)

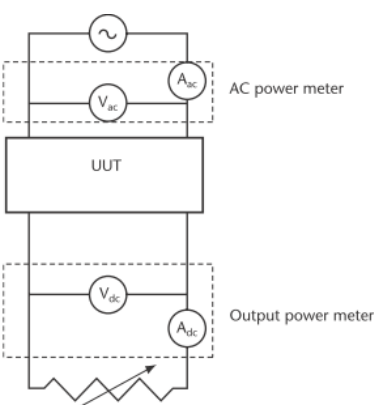
test object does not meet the requirement: F (Fail)

Possible suffixes to the verdicts:

suffix for detailed information for the client: C (Comment)

suffix for important information for factory M (Manufacturing)

inspection:

Clause	Requirement + Test	result – Remark	Verdict
0.	General	Test method is according to EN 50563 and may refer to 10CFR430 Appendix Z for multiple output external power supply in addition as far as needed to supplement the test.	P
0.1	Ambient condition met requirement of: Ambient temperature $20 \pm 5^{\circ}\text{C}$; Airspeed $\leq 0.5\text{m/s}$.	Ambient: 22.5°C Airspeed: 0.4m/s	P
0.2	Power source meets requirement of: The input voltage source must be capable of delivering at least 10 times the nameplate input power of the UUT; Voltage $230\text{V} \pm 1\%$; Frequency $50\text{Hz} \pm 1\%$; THD value $< 2\%$; ratio of peak value of test voltage to rms of 1.34 to 1.49.		P
0.3	Power measurement accuracy		P
	Any power measurements recorded, as well as any power measurement equipment utilized for testing, shall conform to the uncertainty and resolution requirements outlined in Clause 4, "General conditions for measurements," as well as Annexes B, "Notes on the measurement of low power modes," and D, "Determination of uncertainty of measurement," of IEC 62301:2011.		P
0.4	Test circuit		P
	 <p>Fig. 1 Electrical test circuit</p>		P



Clause	Requirement + Test	result – Remark	Verdict																				
Annex II	Ecodesign requirements for external power supplies		P																				
1.	Energy efficiency requirements:		P																				
(a)	From 1 April 2020, the no-load condition power consumption shall not exceed the following values:		P																				
	<table border="1"> <thead> <tr> <th></th> <th>AC-AC external power supplies, except low voltage and multiple voltage output external power supplies</th> <th>AC-DC external power supplies, except low voltage and multiple voltage output external power supplies</th> <th>Low voltage external power supplies</th> <th>Multiple voltage output external power supplies</th> </tr> </thead> <tbody> <tr> <td>$P_o \leq 49,0 \text{ W}$</td> <td>0,21 W</td> <td>0,10 W</td> <td>0,10 W</td> <td>0,30 W</td> </tr> <tr> <td>$P_o > 49,0 \text{ W}$</td> <td>0,21 W</td> <td>0,21 W</td> <td>0,21 W</td> <td>0,30 W</td> </tr> </tbody> </table>		AC-AC external power supplies, except low voltage and multiple voltage output external power supplies	AC-DC external power supplies, except low voltage and multiple voltage output external power supplies	Low voltage external power supplies	Multiple voltage output external power supplies	$P_o \leq 49,0 \text{ W}$	0,21 W	0,10 W	0,10 W	0,30 W	$P_o > 49,0 \text{ W}$	0,21 W	0,21 W	0,21 W	0,30 W	See table 1-3	P					
	AC-AC external power supplies, except low voltage and multiple voltage output external power supplies	AC-DC external power supplies, except low voltage and multiple voltage output external power supplies	Low voltage external power supplies	Multiple voltage output external power supplies																			
$P_o \leq 49,0 \text{ W}$	0,21 W	0,10 W	0,10 W	0,30 W																			
$P_o > 49,0 \text{ W}$	0,21 W	0,21 W	0,21 W	0,30 W																			
(b)	From 1 April 2020, the average active efficiency shall be not less than the following values:		P																				
	<table border="1"> <thead> <tr> <th></th> <th>AC-AC external power supplies, except low voltage and multiple voltage output external power supplies</th> <th>AC-DC external power supplies, except low voltage and multiple voltage output external power supplies</th> <th>Low voltage external power supplies</th> <th>Multiple voltage output external power supplies</th> </tr> </thead> <tbody> <tr> <td>$P_o \leq 1,0 \text{ W}$</td> <td>$0,5 \times P_o/1W + 0,160$</td> <td>$0,5 \times P_o/1W + 0,160$</td> <td>$0,517 \times P_o/1W + 0,087$</td> <td>$0,497 \times P_o/1W + 0,067$</td> </tr> <tr> <td>$1 \text{ W} < P_o \leq 49,0 \text{ W}$</td> <td>$0,071 \times \ln(P_o/1W) - 0,0014 \times P_o/1W + 0,67$</td> <td>$0,071 \times \ln(P_o/1W) - 0,0014 \times P_o/1W + 0,67$</td> <td>$0,0834 \times \ln(P_o/1W) - 0,0014 \times P_o/1W + 0,609$</td> <td>$0,075 \times \ln(P_o/1W) + 0,561$</td> </tr> <tr> <td>$P_o > 49,0 \text{ W}$</td> <td>0,880</td> <td>0,880</td> <td>0,870</td> <td>0,860</td> </tr> </tbody> </table>		AC-AC external power supplies, except low voltage and multiple voltage output external power supplies	AC-DC external power supplies, except low voltage and multiple voltage output external power supplies	Low voltage external power supplies	Multiple voltage output external power supplies	$P_o \leq 1,0 \text{ W}$	$0,5 \times P_o/1W + 0,160$	$0,5 \times P_o/1W + 0,160$	$0,517 \times P_o/1W + 0,087$	$0,497 \times P_o/1W + 0,067$	$1 \text{ W} < P_o \leq 49,0 \text{ W}$	$0,071 \times \ln(P_o/1W) - 0,0014 \times P_o/1W + 0,67$	$0,071 \times \ln(P_o/1W) - 0,0014 \times P_o/1W + 0,67$	$0,0834 \times \ln(P_o/1W) - 0,0014 \times P_o/1W + 0,609$	$0,075 \times \ln(P_o/1W) + 0,561$	$P_o > 49,0 \text{ W}$	0,880	0,880	0,870	0,860	See table 1-3	P
	AC-AC external power supplies, except low voltage and multiple voltage output external power supplies	AC-DC external power supplies, except low voltage and multiple voltage output external power supplies	Low voltage external power supplies	Multiple voltage output external power supplies																			
$P_o \leq 1,0 \text{ W}$	$0,5 \times P_o/1W + 0,160$	$0,5 \times P_o/1W + 0,160$	$0,517 \times P_o/1W + 0,087$	$0,497 \times P_o/1W + 0,067$																			
$1 \text{ W} < P_o \leq 49,0 \text{ W}$	$0,071 \times \ln(P_o/1W) - 0,0014 \times P_o/1W + 0,67$	$0,071 \times \ln(P_o/1W) - 0,0014 \times P_o/1W + 0,67$	$0,0834 \times \ln(P_o/1W) - 0,0014 \times P_o/1W + 0,609$	$0,075 \times \ln(P_o/1W) + 0,561$																			
$P_o > 49,0 \text{ W}$	0,880	0,880	0,870	0,860																			
2.	Information requirements:		P																				
(a)	from 1 April 2020, the nameplate shall include the following information:		P																				
	<table border="1"> <thead> <tr> <th>Nameplate information</th> <th>Value and precision</th> <th>Unit</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>Output power</td> <td>X,X</td> <td>W</td> <td>In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current - Output power shall be given.</td> </tr> <tr> <td>Output voltage</td> <td>X,X</td> <td>V</td> <td>In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current - Output power shall be given.</td> </tr> <tr> <td>Output current</td> <td>X,X</td> <td>A</td> <td>In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current - Output power shall be given.</td> </tr> </tbody> </table>	Nameplate information	Value and precision	Unit	Notes	Output power	X,X	W	In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current - Output power shall be given.	Output voltage	X,X	V	In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current - Output power shall be given.	Output current	X,X	A	In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current - Output power shall be given.		P				
Nameplate information	Value and precision	Unit	Notes																				
Output power	X,X	W	In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current - Output power shall be given.																				
Output voltage	X,X	V	In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current - Output power shall be given.																				
Output current	X,X	A	In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current - Output power shall be given.																				



Clause	Requirement + Test	result – Remark	Verdict																																																
(b)	from 1 April 2020, instruction manuals for end-users (where applicable), and free access websites of manufacturers, importers or authorised representatives shall include the following information, in the order as set out below:		P																																																
	<table border="1"> <thead> <tr> <th data-bbox="323 577 451 629">Information published</th> <th data-bbox="451 577 539 629">Value and precision</th> <th data-bbox="539 577 592 629">Unit</th> <th data-bbox="592 577 890 629">Notes</th> </tr> </thead> <tbody> <tr> <td data-bbox="323 640 451 786">Manufacturer's name or trade mark, commercial registration number and address</td> <td data-bbox="451 640 539 786">-</td> <td data-bbox="539 640 592 786">-</td> <td data-bbox="592 640 890 786">-</td> </tr> <tr> <td data-bbox="323 797 451 824">Model identifier</td> <td data-bbox="451 797 539 824">-</td> <td data-bbox="539 797 592 824">-</td> <td data-bbox="592 797 890 824">-</td> </tr> <tr> <td data-bbox="323 835 451 887">Input voltage</td> <td data-bbox="451 835 539 887">X</td> <td data-bbox="539 835 592 887">V</td> <td data-bbox="592 835 890 887">Specified by the manufacturer. Shall be a value or a range.</td> </tr> <tr> <td data-bbox="323 898 451 949">Input AC frequency</td> <td data-bbox="451 898 539 949">X</td> <td data-bbox="539 898 592 949">Hz</td> <td data-bbox="592 898 890 949">Specified by the manufacturer. Shall be a value or a range.</td> </tr> <tr> <td data-bbox="323 960 451 1077">Output voltage</td> <td data-bbox="451 960 539 1077">X,X</td> <td data-bbox="539 960 592 1077">V</td> <td data-bbox="592 960 890 1077">Nameplate output voltage. Shall indicate whether is AC or DC. In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current</td> </tr> <tr> <td data-bbox="323 1088 451 1137"></td> <td data-bbox="451 1088 539 1137"></td> <td data-bbox="539 1088 592 1137"></td> <td data-bbox="592 1088 890 1137">– Output power shall be published.</td> </tr> <tr> <td data-bbox="323 1149 451 1265">Output current</td> <td data-bbox="451 1149 539 1265">X,X</td> <td data-bbox="539 1149 592 1265">A</td> <td data-bbox="592 1149 890 1265">Nameplate output current. In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current – Output power shall be published.</td> </tr> <tr> <td data-bbox="323 1276 451 1415">Output power</td> <td data-bbox="451 1276 539 1415">X,X</td> <td data-bbox="539 1276 592 1415">W</td> <td data-bbox="592 1276 890 1415">Nameplate output power. In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current – Output power shall be published.</td> </tr> <tr> <td data-bbox="323 1426 451 1621">Average active efficiency</td> <td data-bbox="451 1426 539 1621">X,X</td> <td data-bbox="539 1426 592 1621">%</td> <td data-bbox="592 1426 890 1621">Declared by the manufacturer based on the value calculated as arithmetical mean of efficiency at load conditions 1-4. In cases where multiple average active efficiencies are declared for multiple output voltages available at load condition 1, the value published shall be the average active efficiency declared for the lowest output voltage.</td> </tr> <tr> <td data-bbox="323 1632 451 1868">Efficiency at low load (10 %)</td> <td data-bbox="451 1632 539 1868">X,X</td> <td data-bbox="539 1632 592 1868">%</td> <td data-bbox="592 1632 890 1868">Declared by the manufacturer based on the value calculated at load condition 5. External power supplies with a nameplate output power of 10 W or less shall be exempted from this requirement. In cases where multiple average active efficiencies are declared for multiple output voltages available at load condition 1, the value published shall be the value declared for the lowest output voltage.</td> </tr> <tr> <td data-bbox="323 1879 451 1917">No-load power consumption</td> <td data-bbox="451 1879 539 1917">X,XX</td> <td data-bbox="539 1879 592 1917">W</td> <td data-bbox="592 1879 890 1917">Declared by the manufacturer based on the value measured for load condition 6.</td> </tr> </tbody> </table>	Information published	Value and precision	Unit	Notes	Manufacturer's name or trade mark, commercial registration number and address	-	-	-	Model identifier	-	-	-	Input voltage	X	V	Specified by the manufacturer. Shall be a value or a range.	Input AC frequency	X	Hz	Specified by the manufacturer. Shall be a value or a range.	Output voltage	X,X	V	Nameplate output voltage. Shall indicate whether is AC or DC. In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current				– Output power shall be published.	Output current	X,X	A	Nameplate output current. In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current – Output power shall be published.	Output power	X,X	W	Nameplate output power. In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current – Output power shall be published.	Average active efficiency	X,X	%	Declared by the manufacturer based on the value calculated as arithmetical mean of efficiency at load conditions 1-4. In cases where multiple average active efficiencies are declared for multiple output voltages available at load condition 1, the value published shall be the average active efficiency declared for the lowest output voltage.	Efficiency at low load (10 %)	X,X	%	Declared by the manufacturer based on the value calculated at load condition 5. External power supplies with a nameplate output power of 10 W or less shall be exempted from this requirement. In cases where multiple average active efficiencies are declared for multiple output voltages available at load condition 1, the value published shall be the value declared for the lowest output voltage.	No-load power consumption	X,XX	W	Declared by the manufacturer based on the value measured for load condition 6.		P
Information published	Value and precision	Unit	Notes																																																
Manufacturer's name or trade mark, commercial registration number and address	-	-	-																																																
Model identifier	-	-	-																																																
Input voltage	X	V	Specified by the manufacturer. Shall be a value or a range.																																																
Input AC frequency	X	Hz	Specified by the manufacturer. Shall be a value or a range.																																																
Output voltage	X,X	V	Nameplate output voltage. Shall indicate whether is AC or DC. In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current																																																
			– Output power shall be published.																																																
Output current	X,X	A	Nameplate output current. In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current – Output power shall be published.																																																
Output power	X,X	W	Nameplate output power. In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the sets of available Output voltage - Output current – Output power shall be published.																																																
Average active efficiency	X,X	%	Declared by the manufacturer based on the value calculated as arithmetical mean of efficiency at load conditions 1-4. In cases where multiple average active efficiencies are declared for multiple output voltages available at load condition 1, the value published shall be the average active efficiency declared for the lowest output voltage.																																																
Efficiency at low load (10 %)	X,X	%	Declared by the manufacturer based on the value calculated at load condition 5. External power supplies with a nameplate output power of 10 W or less shall be exempted from this requirement. In cases where multiple average active efficiencies are declared for multiple output voltages available at load condition 1, the value published shall be the value declared for the lowest output voltage.																																																
No-load power consumption	X,XX	W	Declared by the manufacturer based on the value measured for load condition 6.																																																
	The relevant load conditions are as follows:		P																																																



Clause	Requirement + Test	result – Remark	Verdict																
	<table border="1"> <tr> <td colspan="2" data-bbox="325 376 887 416">Percentage of nameplate output current</td> </tr> <tr> <td data-bbox="325 421 560 452">Load condition 1</td> <td data-bbox="560 421 887 452">100 % ± 2 %</td> </tr> <tr> <td data-bbox="325 456 560 488">Load condition 2</td> <td data-bbox="560 456 887 488">75 % ± 2 %</td> </tr> <tr> <td colspan="2" data-bbox="325 506 887 537"> </td> </tr> <tr> <td data-bbox="325 542 560 573">Load condition 3</td> <td data-bbox="560 542 887 573">50 % ± 2 %</td> </tr> <tr> <td data-bbox="325 577 560 609">Load condition 4</td> <td data-bbox="560 577 887 609">25 % ± 2 %</td> </tr> <tr> <td data-bbox="325 613 560 645">Load condition 5</td> <td data-bbox="560 613 887 645">10 % ± 1 %</td> </tr> <tr> <td data-bbox="325 649 560 680">Load condition 6</td> <td data-bbox="560 649 887 680">0 % (no-load condition)</td> </tr> </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 % ± 1 %	Load condition 6	0 % (no-load condition)		P
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 % ± 1 %																		
Load condition 6	0 % (no-load condition)																		



TABLE1	Measurement and calculation						P
Model:	ETM703PQ						
	Load condition 1	Load condition 2	Load condition 3	Load condition 4	Load condition 5*	Load condition 6	
	100% ± 2%	75% ± 2%	50% ± 2%	25% ± 2%	10% ± 1%	0%	
<input checked="" type="checkbox"/> Output #1:							
Output current (mA)	3000.0	2250.0	1500.0	750.0	300.0		
Output Voltage (V)	5.09	5.13	5.17	5.23	5.25		
Active Output Power (W)	15.27	11.54	7.76	3.92	1.58		
<input type="checkbox"/> Output #2:							
Output current (mA)	--	--	--	--	--		
Output Voltage (V)	--	--	--	--	--		
Active Output Power (W)	--	--	--	--	--		
Input Voltage (V)	230.4	230.4	230.5	230.5	230.5	230.5	
Input current (mA)	156.3	121.9	87.2	49.5	24.6	3.4	
Input Power (W)	17.78	13.23	8.95	4.58	1.93	0.09	
THD _i (%)	0.387	0.349	0.306	0.262	0.241	0.246	
True Power Factor	0.4947	0.4707	0.4463	0.3974	0.3349	0.1302	
Power consumed (W)	2.51	1.69	1.19	0.66	0.35	0.09	
Active mode Efficiency(%)	85.88	87.23	86.70	85.59	81.87		
Average active Efficiency(%)	86.35						
Calculation information: True Power Factor = Input Power / (Input Voltage * Input current) Power consumed = Input Power - Active Output Power Efficiency = Active Output Power / Input Power Average Efficiency = (Efficiency 1 + Efficiency 2 + Efficiency 3 + Efficiency 4)/4 No Load Power consumption = Input Power @ 0% load							
Supplementary information: <ul style="list-style-type: none"> - Setting: Default. - Test load: See above. - Stability achieved: Yes. - Input cable: N/A, Output cable: N/A - * load contion for external power supply with a name plate output power great than 10 wastts; - Above tables for output data may be extended if more than 2 outputs for multiple output external power supply. - Test for rated output 5.0VDC, 3.0A, 15.0W. - Average active mode efficiency $\geq 0.0834 * \ln(\text{Po}/1\text{W}) - 0.0014 * \text{Po}/1\text{W} + 0.609 = 81.39\%$. - The no-load condition consumption shall not exceed 0.10W. 							



TABLE2	Measurement and calculation						P
Model:	ETM703PQ						
	Load condition 1	Load condition 2	Load condition 3	Load condition 4	Load condition 5*	Load condition 6	
	100% ± 2%	75% ± 2%	50% ± 2%	25% ± 2%	10% ± 1%	0%	
<input checked="" type="checkbox"/> Output #1:							
Output current (mA)	2000.0	1500.0	1000.0	500.0	200.0		
Output Voltage (V)	9.18	9.21	9.24	9.27	9.3		
Active Output Power (W)	18.36	13.82	9.24	4.64	1.86		
<input type="checkbox"/> Output #2:							
Output current (mA)	--	--	--	--	--		
Output Voltage (V)	--	--	--	--	--		
Active Output Power (W)	--	--	--	--	--		
Input Voltage (V)	230.4	230.4	230.5	230.5	230.5		
Input current (mA)	175.5	138.9	99.4	56.3	28.8		
Input Power (W)	20.44	15.38	10.38	5.33	2.35		
THD _i (%)	0.41	0.366	0.315	0.274	0.244		
True Power Factor	0.5041	0.4802	0.4549	0.4129	0.3516		
Power consumed (W)	2.08	1.56	1.14	0.69	0.49		
Active mode Efficiency(%)	89.82	89.86	89.02	87.05	79.15		
Average ac%tive Efficiency(%)	88.94						
Calculation information:							
True Power Factor = Input Power / (Input Voltage * Input current)							
Power consumed = Input Power - Active Output Power							
Efficiency = Active Output Power / Input Power							
Average Efficiency = (Efficiency 1 + Efficiency 2 + Efficiency 3 + Efficiency 4)/4							
No Load Power consumption = Input Power @ 0% load							
Supplementary information:							
<ul style="list-style-type: none"> - Setting: Default. - Test load: See above. - Stability achieved: Yes. - Input cable: N/A , Output cable: N/A - * load contion for external power supply with a name plate output power great than 10 wastts; - Above tables for output data may be extended if more than 2 outputs for multiple output external power supply. - Test for rated output 9.0VDC, 2.0A, 18.0W. - Average active mode efficiency $\geq 0.071 * \ln(Po/1W) - 0.0014 * Po/1W + 0.67 = 85.00\%$. - The no-load condition consumption shall not exceed 0.10W. (The measured data of no-load condition consumption see table 1) 							



TABLE3	Measurement and calculation						P
Model:	ETM703PQ						
	Load condition 1	Load condition 2	Load condition 3	Load condition 4	Load condition 5*	Load condition 6	
	100% ± 2%	75% ± 2%	50% ± 2%	25% ± 2%	10% ± 1%	0%	
<input checked="" type="checkbox"/> Output #1:							
Output current (mA)	1500.0	1125.0	750.0	375.0	150.0		
Output Voltage (V)	12.23	13.77	12.27	12.28	12.30		
Active Output Power (W)	18.35	13.77	9.2	4.61	1.85		
<input type="checkbox"/> Output #2:							
Output current (mA)	--	--	--	--	--		
Output Voltage (V)	--	--	--	--	--		
Active Output Power (W)	--	--	--	--	--		
Input Voltage (V)	230.4	230.4	230.5	230.5	230.5		
Input current (mA)	175.6	139.2	100.0	57.2	30.2		
Input Power (W)	20.41	15.41	10.44	5.43	2.49		
THD _i (%)	0.413	0.366	0.323	0.271	0.248		
True Power Factor	0.5033	0.4812	0.4529	0.4133	0.3601		
Power consumed (W)	2.06	1.64	1.24	0.82	0.64		
Active mode Efficiency(%)	89.91	89.36	88.12	84.90	74.30		
Average active Efficiency(%)	88.07						
Calculation information:							
True Power Factor = Input Power / (Input Voltage * Input current)							
Power consumed = Input Power - Active Output Power							
Efficiency = Active Output Power / Input Power							
Average Efficiency = (Efficiency 1 + Efficiency 2 + Efficiency 3 + Efficiency 4)/4							
No Load Power consumption = Input Power @ 0% load							
Supplementary information:							
<ul style="list-style-type: none"> - Setting: Default. - Test load: See above. - Stability achieved: Yes. - Input cable: N/A, Output cable: N/A - * load contion for external power supply with a name plate output power great than 10 wastts; - Above tables for output data may be extended if more than 2 outputs for multiple output external power supply. - Test for rated output 12.0VDC, 1.5A, 18.0W. - Average active mode efficiency $\geq 0.071 * \ln(Po/1W) - 0.0014 * Po/1W + 0.67 = 85.00\%$. - The no-load condition consumption shall not exceed 0.10W. (The measured data of no-load condition consumption see table 1) 							



Equipment List

Equipment	ID No,	Model	Accuracy	Calibration due date
Stopwatch	486/040407	JD-1 II	±0,5s/day	2021.01.14
Precision Power Analyzer	486/127458	WT3000	±(0,05%reading +0,05%range)	2021.01.14
AC Power Source	486/146850	AN97005H	±1%	In use
Luminometer	486/064803	LX-9621	±5%	2020.07.22
Stainless Steel Ruler	486/020321	0-100cm	0,1mm	2021.01.14
Thermo-hygrograph	486/032141	ZJ1-2B	Temp, ±1°C, Humidity± 5%	2020.07.22
Anemometer	486/070506	HD2134P.0/TPL-06-300	±2%	2020.07.22
DC Electric Load	486/065419	AN23103M	±3%	2020.07.22

END OF TEST REPORT