

APPROVAL SHEET

CUSTOMER	Schukat
CUSTOMER P/N	
DESCRIPTION	5V 9V 12V 15V/3A ; 20V/2.25A
EDAC MPN	EA1045F1(U02)
EDAC MODEL NO FOR SAFETY	EA1045F1
DATE	2021-11-25
REVISION	0

APPROVED	DESIGN	PREPARE	RoHS
蔡朝豐	諶文	諶文	
CONCLUSION 判定結果	APPROVED 承認	CONDITON APP'D 有條件承認	CUSTOMER'S SIGNATURE: 客戶簽章:



翌勝電子股份有限公司

EDAC POWER ELECTRONICS CO., LTD.
 新北市中和區建一路 150 號 11 樓之 2(E 棟)
 TEL:886-2-82263289 FAX:886-2-82263327

翌勝電子(蘇州)有限公司

Edac Power Electronics (Suzhou) Co., Ltd.
 江蘇省蘇州工業園區勝浦鎮常勝路 59 號
 No.59, Chang Sheng Road, Sheng Pu,
 Suzhou Industrial Park, Jiangsu, China
 Tel: 512-6282-1628 Fax: 512-6282-9608

東莞市翌勝電子有限公司

東莞市鳳崗鎮金鳳凰工業區金鳳凰大道108號廠房
 Tel: 0769-38859898 Fax: 0769-38859897

SUBJECT: SCOPE OF DOCUMENT

CONTAINS :

1-0 General Description

2-0. Input Requirements

3-0. Output Requirements

4-0. Reliability

5-0. Environment

6-0. Safety

7-0. Mechanical Characteristics

1. General Description

The purpose of this document is to specify a single phase AC input switching power supply to meet the requirement of USB type C power delivery. This specification is suitable for : **EA1045F3**. The product is AC to DC switch mode power supply that provide variable output including **5V@3.0A or 9V@3.0A or 12V@3A or 15V@3.0A or 20V@2.25A** output state with **45W** max DC output with variable voltage source. This Specification defines the input, output, performance characteristics, environment , noise and safety requirements.

2-0. Input Requirements

2-1. Input Voltage:

Maximum Voltage: 264Vac

Normal Voltage: 100~240Vac

Minimum Voltage: 90Vac

2-2. Input Frequency:

Maximum Frequency: 63Hz

Normal Frequency: 50~60Hz

Minimum Frequency: 47Hz

2-3. Input Current

a. **1.5A** (Max.) @ 115Vac input with full load.

b. **0.8A** (Max.) @ 230Vac input with full load.

2-4 Configuration

3-wire AC input (**Line ,Neutral**)

2-5 Input Fuse

The hot line side of the input shall have a fuse, rating (**T3.15A/250V**)

2-6 Efficiency

Output Voltage (V)	Efficiency % (Avg)
5V	81.39 %
9V	86.62%
12V	87.40%
15V	87.8%
20V	87.8%

At 115Vac/60Hz & 230Vac/50Hz input voltage and 25%, 50%, 75% &100% of max output current. Meet Energy Efficiency Level VI.

2.7. No Load Power Consumption

No Load Power Consumption with USB Type C no connection 0.1W

2-8 Inrush Current

40A at 110 Vac

80A at 230 Vac At cold start, maximum load.

2-9 Line Regulation

This line regulation is less than ± 1%, of rated output voltage @ full load.

2-10 Hold Up Time

8.3 mSec., @ Normal line, with full load.

2-11 Rise Time

275 mSec., @ Rated AC input, with full load.

From 5V to 90% of output voltage.

2-12 Turn-ON Time

The output voltage should rise to 90% of rated output voltage in less than 3 SEC. from AC apply to 100Vac from start up.

3-0. Output Requirements

3-1. Output Voltage and Current

Output Voltage (Vdc)	Current Min.(A)	Current Max.(A)
<u>+5.0V</u>	<u>0</u>	<u>3.0A</u>
<u>+9.0V</u>	<u>0</u>	<u>3.0A</u>
<u>+12.0V</u>	<u>0</u>	<u>3.0A</u>
<u>+15.0V</u>	<u>0</u>	<u>3.0A</u>
<u>+20.0V</u>	<u>0</u>	<u>2.25A</u>

3-2. Line and Load Regulation

Mode	Tolerance (%)	Regulation (Vdc)
+5V	+6/ -4	4.85V~5.35V
+9V	+5/ -5	8.55V~9.45V
+12V	+5/ -5	11.40V~12.60V
+15V	+5/ -5	14.25V~15.75V
+20V	+5/ -5	19V~21V

3-3. Dynamic Load Regulation

±5% excursion for 50% - 100% or 100% - 50% load change of DC output at any frequency up to 1KHz(duty 50%)

3-4. Ripple & Noise

The power supply shall not exceed the following limits on the indicated voltage for 60Hz or 50Hz ripple, Switching frequency ripple and noise and dynamic load variations measured with a 20MHz bandwidth

Output	Ripple/Noise
<u>+5V</u>	<u>100mV</u>
<u>+9V</u>	<u>180mV</u>
<u>+12V</u>	<u>200mV</u>
<u>+15V</u>	<u>300mV</u>
<u>+20V</u>	<u>360mV</u>

Input condition : for rated voltage , Output condition : for max load

Ripple / Noise: 60Hz ripple + switching ripple and noise

Ripple & Noise are measured at the end of output cable which are added a 0.1uF ceramic capacitor and a 47uF electrolytic capacitor

3-5. Short-Circuit Protection

The adapter can withstand continuous short at DC output and no damage. It will enter into normal condition if the fault condition is removed.

3-6. Stability

2% Max. at constant load with constant input (after **30 minutes** of operation).

3-7. Temperature Rise

Less than **52** on top/bottom case at normal AC input & 100% load of DC output at environment temperature 25 .

3-8. Drop-out (Power Line Disturbance)

Output voltage shall remain within the specified regulation range, through the absence of a line input during 1/2 cycle, at full load and normal AC line input

3-9. Voltage Isolation

The DC ground will be isolated from the AC neutral and AC line.

4-0. Reliability

4-1. MTBF (MIL-HDBK-217F)

The power supply shall be designed and produced to have a mean time between failures (MTBF) of 100,000 at 25 degree C .

5-0. Environment

5-1 Temperature

- a. Operating : 0 to 40
- b. Storage : -20 to 85

5-2 Humidity

- a. Operating : 10 to 90 %
- b. Storage: 5 to 90 %

5-3 Altitude

From sea level to 5,000 Meters (operation) and 5,000 Meters (no operation)

6-0. Safety

6-1. Hi-Pot Test

4242 Vdc 5mA 2 Sec. between primary and secondary circuit

6-2. Insulation Test

500Vdc, 3 Sec. between primary and secondary circuit
IR should 100 M .

6-3. Leakage Current

750 uA, at 240Vac/50 Hz

6-4. Safety

UL, CUL, TUV, CB, UKCA, CE, FCC, CCC

6-5. EMS

Items	Specification	Reference
ESD	Contact: \pm 4KV	IEC 61000-4-2
	Air: \pm 8KV	
RS	Frequency: 1KHz Field Strength: 3V/M	IEC 61000-4-3
EFT	1.0 KV on input AC power ports.	IEC 61000-4-4
SURGE	Line to Line: \pm 1KV (peak)	IEC 61000-4-5
	Line to F.G : \pm 2KV (peak)	

6-6. EMI

Comply with Standards
CISPR 32, EN 55032, Class B
FCC PART 15 Class B

7-0. Mechanical Characteristics

7-1. Physical Size : 98mm(L) * 46mm (W) * 31mm (H)

7-2. Enclosure material : 94V-0 minimum

7-3. Vibration Test

The vibration frequencies are set at 20Hz, with total amplitude of 1.5mm
Along the 3 directions namely X-Y-Z. The each direction should be vibrated
for 60 minutes, after testing no abnormal electrical or mechanical should occur.

7-4. Drop Test (Referencing to CSA C22.2 No.950/UL1950/UL1310/EN62368)






Products shall be dropped from a height of 1000 mm onto a horizontal surface
consists of hardwood at 13mm thick , mounted on two layers of plywood each
19mm to 20mm thick , all supported on a concrete or equivalent non-resilient
floor. Upon conclusion of test , the equipment cannot into hazardous moving
parts and hazardous voltage circuits need be operational , and need meet Hi-Pot
specification requirement .

7-5. Net Weight (Reference) : 200 grams

57+/-0.5

φ 3*3

26+/-0.5

EDAC EDACPOWER ELEC.     

AC ADAPTER 电源适配器
MODEL 型号: EA1045F1
AC INPUT 输入: 100-240Vac, 1.5A, 50-60Hz
DC OUTPUT 输出: 5.0V \equiv 3.0A 15.0W
 or 9.0V \equiv 3.0A 27.0W
 or 12.0V \equiv 3.0A 36.0W
 or 15.0V \equiv 3.0A 45.0W
 or 20.0V \equiv 2.25A 45.0W

CAUTION 注意:
FOR INDOOR USE ONLY 室内产品使用
I.T.E. USE ONLY

DATE CODE:

21	22	23			1	2	3	4	5
1	2	3	4	5	6	7	8	9	0




EDACPOWER 11-2FL., No. 150, Jian Yi Rd., Chung Ho District, New Taipei City, Taiwan, R.O.C.

RoHS

1312 C1 C3

MADE IN CHINA 中国制造

UL US LISTED
 I.T.E. POWER SUPPLY
 41TJ
 E209833
 LPS

CCC   

制造商: 翌胜电子股份有限公司

B1 A12 A4,A9,B4,B9:V+
 B12 A1 A1,A12,B1,B12,Shell:GND
 A5:CC1

3.5

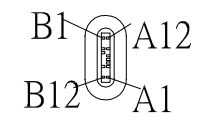
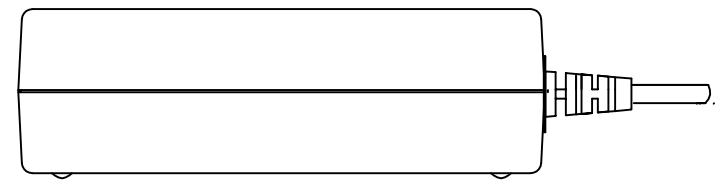
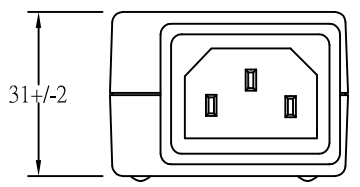
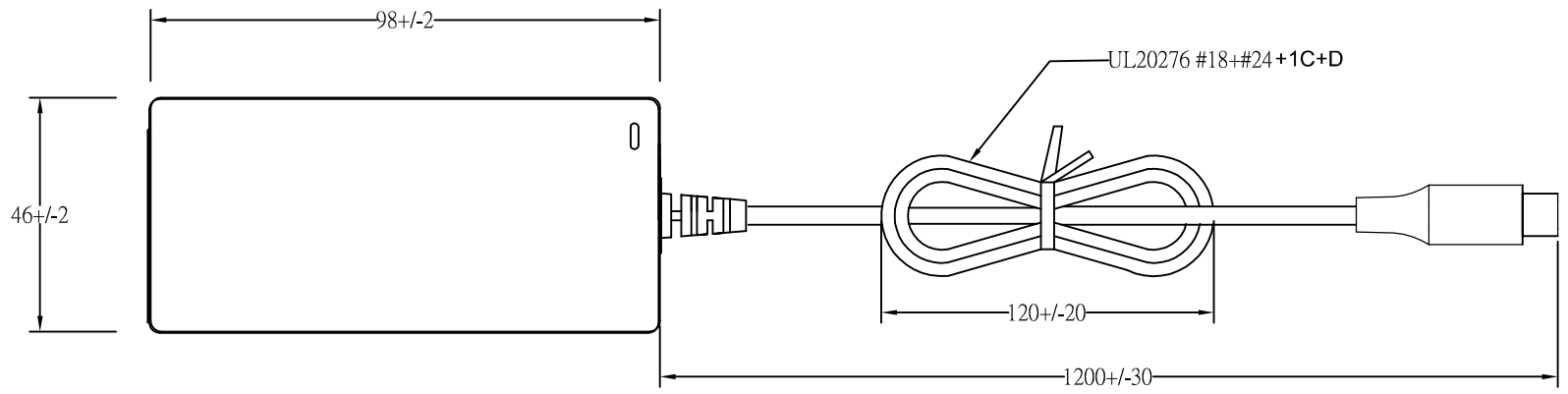
3.5

P/N.: 312

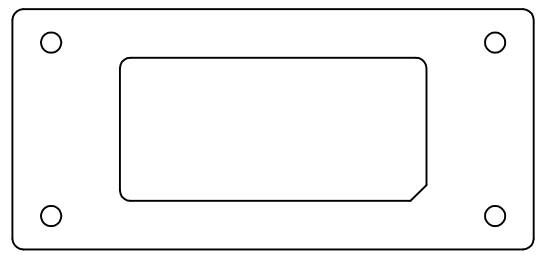
Background: Black color

Character: Silver color

Unit: mm



Connector: Pin-Outs
 A4,A9,B4,B9:V+
 A1,A12,B1,B12,Shell:GND
 A5:CC1



EDACPOWER ELEC.				APPROVED
MODEL	EA1045F1(U02)	UNIT	mm	DESIGNED
color	BLACK	SCALE		CHECK
cus.		DATE	2021-11-25	DRAWING L.J.YU

105mm

Bedienungsanleitung für EDAC Tisch- und Steckernetzteile



Bestimmungsgemäßer Gebrauch

- Dieses Netzteil ist für die Versorgung von Niederspannungsverbrauchern entwickelt worden und erfüllt die Anforderungen der RoHS (2011/65/EG, 215/863/EG), Niederspannungsrichtlinie (2014/35/EU) und der EMV-Richtlinie (2014/30/EU).

Sicherheits-Hinweise

- Bitte die Bedienungsanleitung vor Inbetriebnahme lesen!
- Vor der Inbetriebnahme sollten Sie die Netzspannung und die am Netzgerät angegebene Eingangsspannung sowie die Spannung und Polarität des Ausgangsstromes und die Leistung des anschließenden Gerätes vergleichen. Beides sollte mit den Anforderungen übereinstimmen.
- Im Betrieb ist eine Gehäuseerwärmung normal und unbedenklich. Allerdings sollte es nicht abgedeckt und in der Nähe von Heizkörpern oder unter direkter Sonneneinstrahlung betrieben werden.
- Arbeiten Sie nie mit dem Netzadapter, wenn er offen ist oder einen schadhafte Netzanschluss oder ein beschädigtes (zerrissenes/zerbrochenes) Gehäuse hat. Mögliche Lebensgefahr!
- Überprüfen Sie regelmäßig die mechanische Sicherheit des Geräts z.B. auf Beschädigung des Gehäuses.
- Öffnen Sie niemals das Gerät. Es enthält keine Servicebauteile.
- Reparaturen dürfen nur von einem Techniker ausgeführt werden. Bei eigenmächtigen Änderungen oder Reparaturen am Gerät erlischt die Garantie.
- Vor Spritzwasser und Feuchtigkeit schützen.

Bedienung

- Setzen Sie bei Netzteilen mit wechselbarem Eingangsclip den benötigten Clip für den vorhandenen Netzanschluss ein.
- Prüfen Sie bei Netzteilen mit wechselbaren Ausgangssteckern vor Inbetriebnahme die richtige Auswahl und Polarität je nach Anwendung.
- Die LED Betriebsanzeige leuchtet (sofern vorhanden) auch ohne angeschlossenes Endgerät, sobald das Netzteil mit der Netzspannung verbunden ist.

Pflege

- Zum Reinigen dürfen Sie keinerlei Reinigungsmittel verwenden. Ausschließlich mit einem trockenen Tuch abwischen.

Hinweis

- Wird das Netzteil nicht in industriellen Anwendungen verwendet, sondern einem Endverbraucher mit dem zugehörigen Endgerät zugänglich gemacht, müssen ERP 2019/1782 relevante Daten im Handbuch des Endgerätes aufgeführt werden.

Entsorgung

- Elektronische Altgeräte sind Wertstoffe und gehören nicht in den Hausmüll. Ist das Gerät am Ende seiner Lebensdauer, entsorgen Sie es nach den geltenden gesetzlichen Bestimmungen bei den geeigneten Sammelstellen des Entsorgungssystems. Eine Entsorgung über den Hausmüll ist untersagt.



Hersteller

EDACPOWER Electronics Co., Ltd.
11-2FL., No.150, Jian Yi Rd., Chung Ho
District, New Taipei City, Taiwan, R.O.C.
Internet: www.edac.com.tw
E-Mail: sales@edac.com.tw
Telefon: + 886-2-8226-3289

Importeur

Schukat electronic Vertriebs GmbH
Hans-Georg-Schukat-Straße 2
DE-40789 Monheim am Rhein
Telefon: +49-2173-950-5
Telefax: +49-2173-950-999
E-Mail: info@schukat.com
Internet: www.schukat.com
WEEE-Reg.-Nr.: DE 23942637

Stand: Mai 2020

148mm

	No Load	Active Power Values					
Percent of Nameplate Current	0%	10%	25%	50%	75%	100%	Average
12V/3A(A)	0.000	0.300	0.750	1.500	2.250	3.000	Pass
12V/3A(V)	11.948	11.949	11.958	11.973	11.990	12.004	
DC Output Power(W)	0.000	3.584	8.968	17.959	26.977	36.012	
AC Input Voltage(V)	115						
Frequency(Hz)	60						
AC Input Current(A)	0.014	0.099	0.220	0.405	0.558	0.707	
AC Input Power(W)	0.079	4.138	10.098	20.198	30.698	41.798	
Power Factor(W/VA)	0.046	0.358	0.395	0.432	0.474	0.510	
Power Consumed by UUT(W)	0.079	0.554	1.130	2.239	3.721	5.786	
Efficiency(%)		86.611	88.809	88.914	87.878	86.157	

	No Load	Active Power Values					
Percent of Nameplate Current	0%	10%	25%	50%	75%	100%	Average
12V/3A(A)	0.000	0.300	0.750	1.500	2.250	3.000	Pass
12V/3A(V)	11.953	11.949	11.961	11.979	11.990	12.007	
DC Output Power(W)	0.000	3.584	8.970	17.968	26.977	36.020	
AC Input Voltage(V)	230						
Frequency(Hz)	50						
AC Input Current(A)	0.023	0.064	0.134	0.244	0.349	0.451	
AC Input Power(W)	0.099	4.196	10.195	20.295	30.595	40.895	
Power Factor(W/VA)	0.017	0.284	0.328	0.360	0.379	0.393	
Power Consumed by UUT(W)	0.099	0.612	1.225	2.327	3.618	4.875	
Efficiency(%)		85.414	87.984	88.534	88.174	88.079	

	No Load	Active Power Values					Average
Percent of Nameplate Current	0%	10%	25%	50%	75%	100%	
5V/3A(A)	0.000	0.301	0.750	1.500	2.250	3.000	Pass
5V/3A(V)	4.980	4.988	4.999	5.013	5.029	5.045	
DC Output Power(W)	0.000	1.501	3.749	7.519	11.315	15.135	
AC Input Voltage(V)	115						
Frequency(Hz)	60						
AC Input Current(A)	0.014	0.046	0.102	0.192	0.282	0.373	
AC Input Power(W)	0.029	1.718	4.308	8.798	13.498	18.698	
Power Factor(W/VA)	0.017	0.317	0.363	0.393	0.414	0.432	
Power Consumed by UUT(W)	0.029	0.217	0.559	1.279	2.183	3.563	
Efficiency(%)		87.369	87.024	85.462	83.827	80.944	

	No Load	Active Power Values					Average
Percent of Nameplate Current	0%	10%	25%	50%	75%	100%	
5V/3A(A)	0.000	0.300	0.750	1.500	2.250	3.000	Pass
5V/3A(V)	4.992	4.988	4.998	5.013	5.030	5.044	
DC Output Power(W)	0.000	1.496	3.748	7.519	11.317	15.131	
AC Input Voltage(V)	230						
Frequency(Hz)	50						
AC Input Current(A)	0.023	0.036	0.066	0.119	0.171	0.226	
AC Input Power(W)	0.049	1.797	4.496	8.895	13.595	18.695	
Power Factor(W/VA)	0.008	0.215	0.289	0.324	0.342	0.358	
Power Consumed by UUT(W)	0.049	0.301	0.748	1.376	2.278	3.564	
Efficiency(%)		83.249	83.362	84.530	83.243	80.936	

	No Load	Active Power Values					
Percent of Nameplate Current	0%	10%	25%	50%	75%	100%	Average
9V/3A(A)	0.000	0.300	0.750	1.500	2.249	3.000	Pass
9V/3A(V)	9.023	9.026	9.036	9.050	9.065	9.080	
DC Output Power(W)	0.000	2.707	6.777	13.575	20.387	27.239	
AC Input Voltage(V)	115						
Frequency(Hz)	60						
AC Input Current(A)	0.014	0.077	0.171	0.318	0.453	0.572	
AC Input Power(W)	0.056	3.088	7.598	15.398	23.498	31.998	
Power Factor(W/VA)	0.034	0.345	0.386	0.418	0.449	0.483	
Power Consumed by UUT(W)	0.056	0.381	0.821	1.823	3.111	4.759	
Efficiency(%)		87.661	89.194	88.160	86.760	85.127	

	No Load	Active Power Values					
Percent of Nameplate Current	0%	10%	25%	50%	75%	100%	Average
9V/3A(A)	0.000	0.300	0.750	1.500	2.250	3.000	Pass
9V/3A(V)	9.029	9.024	9.032	9.051	9.066	9.083	
DC Output Power(W)	0.000	2.707	6.773	13.576	20.398	27.249	
AC Input Voltage(V)	230						
Frequency(Hz)	50						
AC Input Current(A)	0.023	0.051	0.106	0.192	0.275	0.359	
AC Input Power(W)	0.069	3.196	7.795	15.495	23.395	31.795	
Power Factor(W/VA)	0.013	0.266	0.317	0.347	0.368	0.382	
Power Consumed by UUT(W)	0.069	0.489	1.022	1.919	2.997	4.546	
Efficiency(%)		84.699	86.889	87.615	87.189	85.702	

	No Load	Active Power Values					Average
Percent of Nameplate Current	0%	10%	25%	50%	75%	100%	
15V/3A(A)	0.000	0.300	0.750	1.500	2.250	3.000	Pass
15V/3A(V)	15.130	15.125	15.134	15.148	15.166	15.180	
DC Output Power(W)	0.000	4.537	11.350	22.722	34.123	45.540	
AC Input Voltage(V)	115						
Frequency(Hz)	60						
AC Input Current(A)	0.014	0.120	0.272	0.491	0.669	0.855	
AC Input Power(W)	0.069	5.118	12.698	25.498	38.598	52.498	
Power Factor(W/VA)	0.057	0.367	0.404	0.449	0.499	0.532	
Power Consumed by UUT(W)	0.096	0.581	1.348	2.776	4.475	6.958	
Efficiency(%)		88.647	89.384	89.112	88.406	86.746	

	No Load	Active Power Values					Average
Percent of Nameplate Current	0%	10%	25%	50%	75%	100%	
15V/3A(A)	0.000	0.300	0.750	1.500	2.250	3.000	Pass
15V/3A(V)	15.123	15.125	15.131	15.147	15.162	15.175	
DC Output Power(W)	0.000	4.537	11.348	22.720	34.114	45.525	
AC Input Voltage(V)	230						
Frequency(Hz)	50						
AC Input Current(A)	0.023	0.075	0.163	0.298	0.427	0.556	
AC Input Power(W)	0.093	5.096	12.695	25.495	38.295	51.394	
Power Factor(W/VA)	0.020	0.296	0.337	0.368	0.388	0.400	
Power Consumed by UUT(W)	0.109	0.559	1.347	2.775	4.181	5.869	
Efficiency(%)		89.030	89.389	89.115	89.082	88.580	

	No Load	Active Power Values					
Percent of Nameplate Current	0%	10%	25%	50%	75%	100%	Average
20V/2.25A(A)	0.000	0.225	0.562	1.125	1.688	2.250	Pass
20V/2.25A(V)	20.099	20.086	20.096	20.106	20.114	20.122	
DC Output Power(W)	0.000	4.519	11.293	22.619	33.952	45.274	
AC Input Voltage(V)	115						
Frequency(Hz)	60						
AC Input Current(A)	0.014	0.122	0.273	0.490	0.664	0.838	
AC Input Power(W)	0.140	5.208	12.798	25.398	38.098	51.198	
Power Factor(W/VA)	0.081	0.367	0.404	0.449	0.497	0.528	
Power Consumed by UUT(W)	0.140	0.689	1.505	2.779	4.146	5.924	
Efficiency(%)		86.770	88.240	89.058	89.117	88.429	

	No Load	Active Power Values					
Percent of Nameplate Current	0%	10%	25%	50%	75%	100%	Average
20V/2.25A(A)	0.000	0.225	0.562	1.125	1.687	2.250	Pass
20V/2.25A(V)	20.096	20.088	20.097	20.103	20.116	20.125	
DC Output Power(W)	0.000	4.519	11.294	22.615	33.935	45.281	
AC Input Voltage(V)	230						
Frequency(Hz)	50						
AC Input Current(A)	0.023	0.075	0.164	0.297	0.423	0.550	
AC Input Power(W)	0.149	5.196	12.795	25.295	37.895	50.694	
Power Factor(W/VA)	0.028	0.296	0.337	0.368	0.388	0.398	
Power Consumed by UUT(W)	0.149	0.677	1.501	2.680	3.960	5.413	
Efficiency(%)		86.970	88.268	89.405	89.550	89.322	