UMEC SMPS SPECIFICATION

1.0 DESCRIPTION

The power supply that is described by this report is a **2** outputs **123** watts unit. The model number is **UP1232A-01**. This unit will be designed to meet the relevant safety and EMC regulations.

Note: The electrical characteristics is described in open frame model, unless specified.

2.0 INPUT REQUIREMENTS

2.1 Operating Voltage Ranges

The input working voltage which the power supply will working normally, and meet its specification.

☐ Selectable ☐ Auto-Switching

	Nominal	Min.	Max.
Low range	VAC	VAC	VAC
High range	VAC	VAC	VAC

☑Universal ☐ DC-DC

90 VAC to **264** VAC. ____ VDC to ____ VDC.

Note:

1. Nominal Input Voltage is 115 VAC, 60Hz (Low range) / 230VAC, 60Hz(High range).

2.2 Line Frequency Range

The input working frequency which the power supply will working normally, and meet its specification.

☑ **47** Hz to **63** Hz ☐ DC-DC

2.3 Steady Current

The maximum input current(Arms) which is occurs when the power supply is operating.

Testing procedure:

Set the outputs at max. load, and the source at the lowest input voltage. Then take down the data of maximum input current.

Steady-Current	**1.8** Arms max.

2.4 Inrush Current

The peak input current occurs when the power supply is power up at nominal line.

	Spec.
Inrush-Current ☑ cold start 25 DegC ☐ any conditions	**100** A max.

2.5 Leakage Current (DC-DC exclude)

Testing procedure:

Set the output at rated load, and the source at the highest input voltage. Then take down the data of the maximum current flow to safety ground, according to IEC-950 test set up.

Spec.	**3.5** mA max.

3.0 OUTPUT REQUIREMENTS

3.1 Output Load and Current

In this section describe the output voltage, and minimum, rated, maximum, peak output current of each output channel; The voltage multiple rated current value come out the output power of each output channel.

	Specified O/P Voltage	Accuracy Voltage	Output Current				Total Power
			Min.	Rated	Max.	Peak*	
☑CH1	**5** V	**5.05**V to **5.35**V	**0** A	**3** A	A	**3** A	**123** W
☑CH2	**24** V	**22.8**V to **25.2**V	**0** A	**4.5** A	A	**4.5** A	

Accuracy voltage is conducted at **100**% rated load, and nominal input voltage.

3.2 Ripple & Noise

The magnitude of AC voltage on the output of a power supply, expressed in millivolt peak-to-peak, at a specified bandwidth. Which is include line noise, switching noise and random noise.

Testing procedure:

Testing is conducted under the condition of rated load, and nominal line, nominal ambient temperature, and connected a 0.1 uF ceramic, and 10 uF EL capacitor at the output connector. Measuring is done with a 20MHz bandwidth (unless otherwise specified) oscilloscope, on the output connector.

	Spec.
☑CH1	**150** mV
☑CH2	**300** mV

3.3 ☐Line Regulation ☑None

3.4 ☐Load Regulation ☑None

3.5 ☐Dynamic Response ☑None

3.6 ☑ Total Regulation ☐ None

The maximum deviation of output voltage in percent, including line, load, cross regulation, and temperature coefficient.

Testing procedure:

Set testing CH at maximum, and the other output at minimum load to get the Low-V of the testing CH. Set testing CH at minimum, and the other output at maximum load to get the High-V of the testing CH. Take down the worst case data.

	Spec.
☑CH1	**5.05 V** to **5.35 V**
☑CH2	**22.8 V** to **25.2 V**

4.0 PROTECTION REQUIREMENTS

4.1 ☑ Over-Voltage Protection ☐None

A protection feature which shuts down the output, when the output voltage of specific channel exceed an internally threshold point.

☐Testing procedure for Crow-Bar type:

Set the AC input voltage at off line and inject a higher voltage from the output connector. And increase the voltage gradually until the power supply is shut down, then take down the trip voltage.

The injected DC voltage is _____VDC, limit current is _____ A.

☐Testing procedure for Zener-Clamp type:

Setting AC input at off-line and inject a higher voltage from the output connector with specified limit current, Then take down the voltage show in the voltage meter;

The injected DC voltage is _____VDC, limit current is _____ A.

☑Setting AC input voltage at nominal and output at min. load. Simulation OVP condition to open feedback point then power supply will be shutdown . To take down the max. output voltage.

	Spec.
☑CH1	**26.2 V ~ 28.8 V**
☑CH2	**5.7 V ~ 6.7 V**

The OVP is reset ☑ by recycling the input power.

☐ automatically or can't recover depend on the suppressor failed or not.

4.2 ☐Over-Temperature Protection ☑None

4.3 ☑Over-Current Protection ☐None

A protection feature, which shuts down the output, when the output loads, excesses the preset point.

Testing procedure:

Set the input voltage at nominal, and other outputs at rated load condition. Then increase the load current of the testing CH gradually from rated load until the power supply is shut down, then take down the V-I curve of each testing CH. The test should be conducted under Low and High nominal line.

	Spec.
☑ CH1	**5.4 ~ 9.0** A

The OCP is reset by recycling the input power.

4.4 ☑No Load Operation ☐None

The power supply will operate under no load condition.

Testing procedure:

Set the power supply at no load condition, the output voltage may not stay within the regulation limits. Test should be conducted at low and high line with both input ranges.

4.5 ☑Short Circuit Protection ☐None

The power supply will be protected from short circuit at any outputs with no damage.

Testing procedure:

Set the power supply at rated load condition, then short circuit all the output itself individually or each other for at lease **one minute** with no damage.

The SCP is reset by recycling the input power.

4.6 ☑Over-Power Protection ☐None

A protection feature, which shuts down the output, when the output loads, excesses the preset point.

Testing procedure:

Set the input voltage at nominal, and other outputs at rated load condition. Then increase the load current of the testing CH gradually from rated load until the output V1 is shut down, then take down the total power. The test should be conducted under Low and High nominal line.

	Spec.
Total power	**120**%~**200**% rated

The OPP is reset by recycling the input power.

5.0 GENERAL REQUIREMENTS

5.1 ☑Turn-On Delay ☐None

The delay time for output rises within regulation limits after the input power turn on.

Testing procedure:

Set the power supply at rated load, and 115 Vac input voltage (unless otherwise specified) condition. Then turn on the input power, measuring the time between input power is turn on and all output voltage go within regulation limits.

Spec.	**3** S ☑typical. ☐min

5.2 ☑Turn-On overshot/undershot ☐None

The deviation of output voltage expresses in percent, when power on.

Testing procedure:

Set the power supply at rated load, and nominal input voltage (unless otherwise specified) condition. Then turn on the input power, measuring the deviation which over the specific limit of output voltage.

Spec.	+\- **10** %

5.3 ☑Rise Time ☐None

The rise up speed of the output voltage.

Testing procedure:

Set the power supply at rated load, and 90Vac input voltage (unless otherwise specified) condition. Then turn on the input power, measuring the time between 10% to 90% of output voltage.

Spec.	**100**mS ☑max. ☐min.

5.4 ☑Efficiency ☐None

The ratio of total output power to input power, express in percent.

Testing procedure:

Set the output at rated load and nominal input voltage (unless otherwise specified) condition. The ratio of total output power to input power, express in percent is efficiency.

Spec.	**80** % ☑typical ☐min.

5.5 ☑Hold-Up Time ☐None

The time duration of the output voltage stay within regulation after the input power is removed.

Testing procedure:

Set the output at rated load and nominal input voltage (unless otherwise specified) condition. Then measuring the time between input power is removed and all the output voltage stay within regulation.

Main CH	Spec.	**8** mS ☑typical ☐min.

5.6 ☐Time Sequence ☑None

5.7 ☑Temperature Coefficient ☐None

The ratio of variation of output voltage to temperature change, express in percent.

Testing procedure:

Keep the power supply at rated load , and nominal input voltage, then change the ambient temperature, take down the variation of the output voltage of main channel. Test should be conducted after 1/2 hour warm-up. For full operating temperature range, at lease two step range should be checked, and at least ten minutes per each step range. Then take down the worse case data.

Main CH	Spec.	**0.02**%/ DegC max.

5.8 Burn In Condition (With Case)

All electrical characteristics are described by open frame model but final production must assembly with case specified by customer. For thermal concerning, burn in condition described as follows.

Burn-in condition of final production (with case).

-Input voltage: nominal input voltage.

-Load: 65% rated load.

-Ta: 25 DegC

-Period of Burn-in is at least 4 hours.

6.0 EMC REQUIREMENTS

6.1 ☑EMI Requirements ☐None

The power supply will design to meet the following International Regulations:

☑ CISPR 22 class **B** ☑ EN55022 class **B**

☐ EN61204-3 class ___ ☑ VCCI class ____

☑ FCC parts 15 class **B** ☐ EN61000-3-2/-3 class ___

☐ IEC-60555-2/-3 class ___

☐ Other _____.

☐ Other _____.

6.2 ☑EMS Requirements ☐None

☐ EN55024 ☑ IEC-61000-4-2 ☑ IEC-61000-4-3
☑ IEC-61000-4-4 ☑ IEC-61000-4-5 ☑ IEC-61000-4-6
☐ IEC-61000-4-8 ☐ IEC-61000-4-11
☐ Other _____.
☐ Other _____.
☐ Other _____.

7.0 SAFETY REQUIREMENTS

The power supply will design to meet the following International Regulations:.
☑ U.L 60950 ☑ IEC 60950 ☑ EN60950
☐ CU.L: CAN/CSA C22.2 NO.60950-1
☐ PSE ☐ CCC ☐ VDE ☐ AUSTRALIA
☐ NOM ☐ NEMKO ☐ DEMKO ☐ SEMKO
☑ Other **HI-POT(L,N TO FG):2121VDC,1 minute,** .
I.R.: 50MΩ(min. at room temperature) .
☑ Other **IEC60065** .

8.0 RELIABILITY REQUIREMENTS

8.1 MTBF

Mean Time between Failure. The failure rate of the power supply, express in hours, established by the actual operation or calculation from a known standard.
☑ The power supply shall calculate an MTBF of greater than **100K** hours per MIL-HDBK-217 at 25 DegC, 100 % of rated load.and open frame.

9.0 ENVIROMENTAL REQUIREMENTS

9.1 Operating Temperature/humidity

The power supply shall operate in its normal operating mode or be capable of operation after being exposed to the non-operational specified environment for an indefinite period of time throughout the following temperature/humidity ranges specific to the type of equipment.

9.1.1 Operating Temperature Range **0** to **50** DegC
40 DegC~50 DegC Derating 2.5% A/ DegC

9.1.2 Storage Temperature Range **-40** to **85** DegC

9.1.3 Humidity Range, Operating/Non-Operating
20 to **95** %RH, non-condensing.

9.2 Altitude

The power supply shall operate at operating altitudes and be capable of operation after being exposed to an indefinite period of time at specified non-operational altitude ranges.

9.2.1 Operating Altitude Range **0** Ft. to **10,000** Ft.

9.2.2 Non-Operating Altitude Range **0** Ft. to **40,000** Ft.

9.3 Vibration

The power supply will function properly during normal product operating and non-operating vibration situations. It will also assure that the product will meet its performance specifications upon receipt by the customer.

9.3.1 Operating vibration
1 Grms, **5**Hz to **500**Hz, random vibration, **30** minutes along X, Y, Z axis.

9.3.2 Non-Operating Vibration
2 Grms, **5**Hz to **500**Hz, random vibration, **30** minutes along X, Y, Z axis.

9.4 Shock

The power supply will function properly during normal product operating and non-operating shock situations. It will also assure that the product will meet performance specifications upon receipt by the customer.

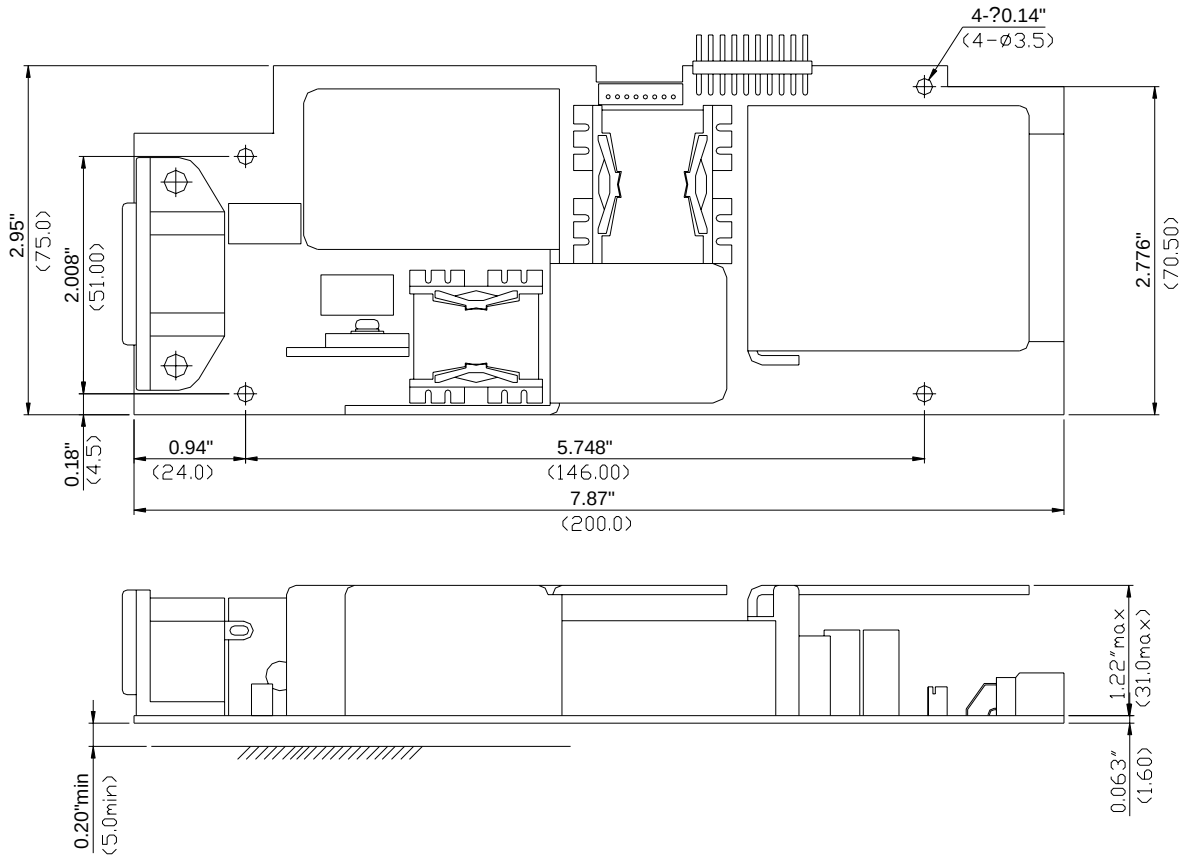
9.4.1 Operating Shock

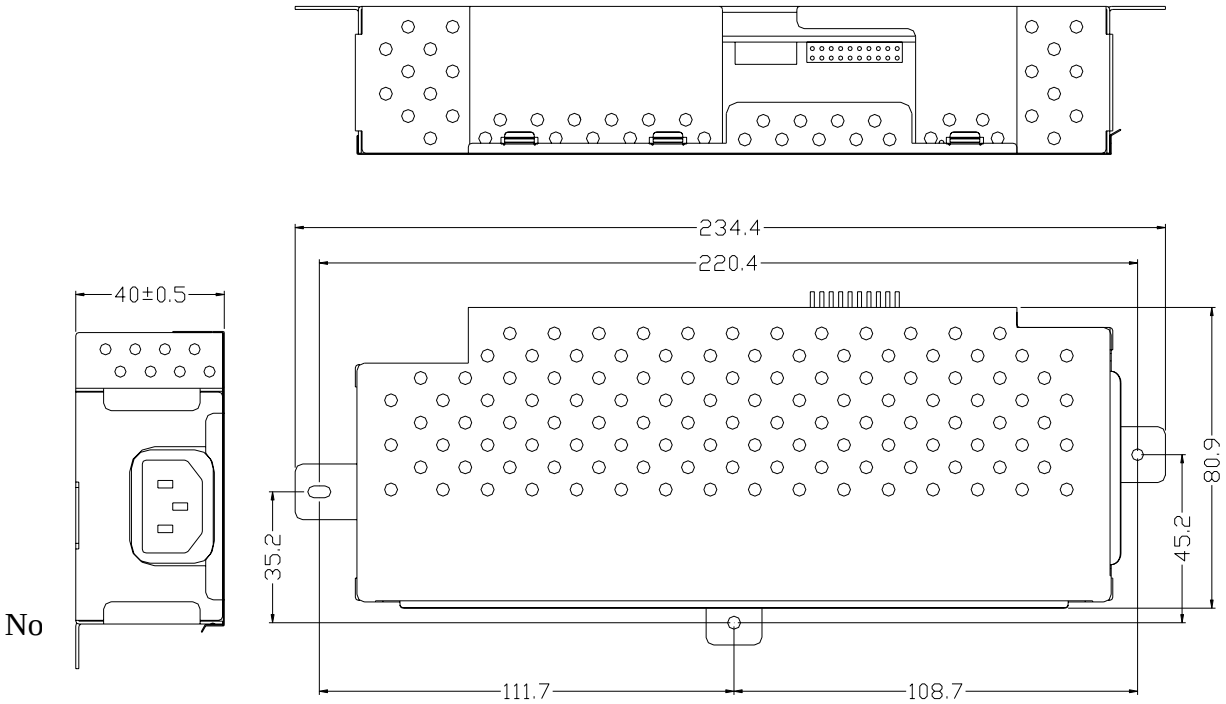
10 G maximum, 1/2 sine wave, 11 msec in any axis.

9.4.2 Non-operating Shock

20 G maximum, 1/2 sine wave, 11 msec in any axis.

10.0 Mechanical Requirements





No

Pin Assignments									
P801	L		AC-INLET [RONG FENG]SS-7B-1-C or equ.	P803 BH2L-2X10 [TKP] 20pin or equ.	Pin 1	ON/OFF	P804 SOLT-30-4P5 [CEN] 30pin	Pin1-18	GND_Tuner
	N				Pin 2	Brightness		Pin19-20	MSCL
					Pin3-4	+24V		Pin21-22	MSDA
	E				Pin5-9	GND		Pin23-24	Tuner_OUT
					Pin10,12	+5V		Pin25-26	21F
P802	Pin 1-3	+24V	P110I-08 [TKP] 2.0mm Pitch 8 Pin or equ.		Pin 11	+5V_Tuner		Pin27-28	MPX
					Pin 13-14	GND_Tuner		Pin29-30	5V_TUNER
	Pin 4-6	GND			Pin15	MPX	P805 P110I-02[TKP] 2.0mm Pitch 2 Pin or equ.	Pin1	Tuner_OUT
	Pin 7	Brightness			PIN16	MSCL			
					Pin 17	21F			
	Pin 8	On/Off			Pin 18	MSDA		Pin2	GND_Tuner
					Pin 19-20	Tuner_OUT			

Dimensions shown in inches (mm) as above. Tolerance unspecified is ±0.04”(1mm)