

*Working on Better Solutions.*

# 高功率电源测试解决方案

翁睦盛  
Sam Weng



- 公司简介
- 大功率电源
- 测试项目
- 测试解决方案

台湾股票上市公司，以Chroma品牌，致力于测试仪器的研发制造，提供各类产品完整测试解决方案



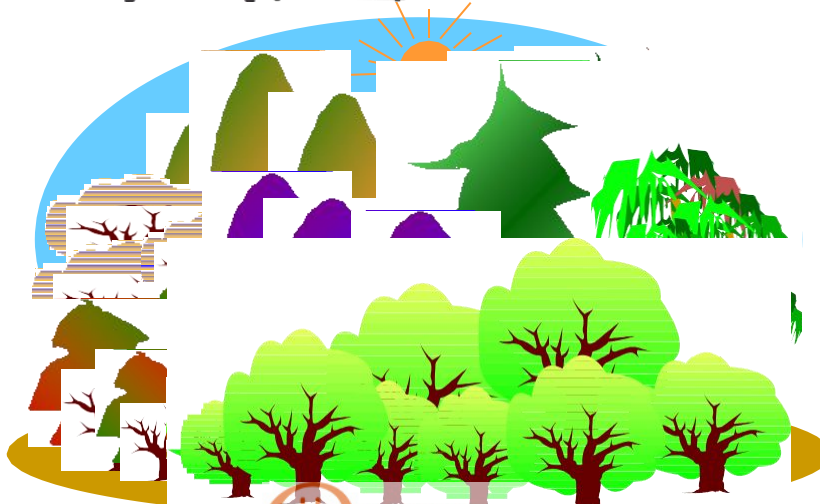
2. Solar Power



1. LED



3. EV/HEV



4. Battery

## 世界级产品

- ◆ 精准
- ◆ 可靠
- ◆ 独特

## 世界级公司

- ◆ “Chroma” 品牌
- ◆ 创新技术
- ◆ 销售全球



# 电力电子测试解决方案

- Power Analyzer
- Digital Power Meter
- AC Power Source
- DC Power Supply
- AC Electronic Load
- DC Electronic Load
- Burn-in DC Power Supply
- Solar Array Simulator
- Automatic Test System

## Applications:





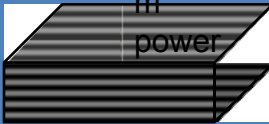

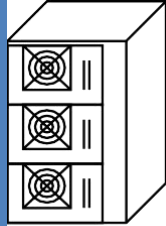


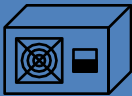
- PC/Server Power
- Adapter
- PV Inverter / UPS
- Backlight Inverter
- Charger
- Burn-in
- Plating
- Ballast
- DC/DC Converter
- Battery
- EV/HEV
- System Integration

全球第一的电源测试解决方案提供者

New



- 公司简介
- 大功率电源
- 测试项目
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Item	    	  	 
Power Range	500W – 150kW	500W – 2,000W	150W – 450W
Voltage Range	5V – 1,000V	1V – 250V	0.5V – 48V
Current Range	10A – 1,000A	1A – 600A	1A – 150A
Output Channel	Single output	1 – 8 outputs	1 – 6 outputs
Chroma Solution	<b>Chroma 63200A Series</b>		<b>Chroma 63600 Series</b>



服务器电源



通讯电源



充电桩



燃料电池



车载充电器



能源储存系统



太阳能板



- 公司简介
- 大功率电源
- 测试项目
- 测试解决方案

## ■ 以服务器电源与通讯电源测试为例

输出端特性测试 输入

端特性测试 时序以及

瞬时特性测试 稳定度

测试

保护特性测试

特殊测试 特

殊功能

## 输出端特性测试

- 1.直流输出电压
- 2.直流输出电流
- 3.峰对峰值噪声
- 4.有效值噪声
- 5.电流纹波
- 6.效率
- 7.开机输出过冲电流
- 8.电源备妥信号
- 9.电源失效信号
- 10.开启电源供应器信号
- 11.额外量测
- 12.波形读取
- 13.过冲电压

## 输入端特性测试

- 14.涌浪电流测试
- 15.输入有效值电流
- 16.输入峰值电流
- 17.输入功率
- 18.输入电流谐波
- 19.输入功率因素
- 20.输入电压缓升/降
- 21.输入频率爬升/降
- 22.输入断电测试
- 23.输入电源失真模拟

## 稳定度测试

- 24.电流稳定度
- 25.电压稳定度
- 26.综合稳定度

## 时序以及瞬时特性测试

- 27.输出上升波形
- 28.输出下降波形
- 29.瞬时反应时间
- 30.瞬时电压
- 31.开机时序
- 32.上升时间
- 33.下降时间
- 34.关机时间
- 35.额外量测
- 36.输出电压顺序

## 保护特性测试

- 37.短路保护
- 38.过电压保护
- 39.低电压保护
- 40.过载(电流)保护
- 41.过功率保护

## 特殊测试

- 42.关联性测试(Pout VS Eff)
- 43.待测物量测功能验证

## 特殊功能

- 44.Can总线读/写
- 45.I2C读/写
- 46.GPIB读/写
- 47.RS-232读/写
- 48.RS-485读/写
- 49.TTL信号控制
- 50.继电器控制
- 51.条形码读取
- 52.数位电表量测

您测了几项？

您如何测？

# 输入端特性测试

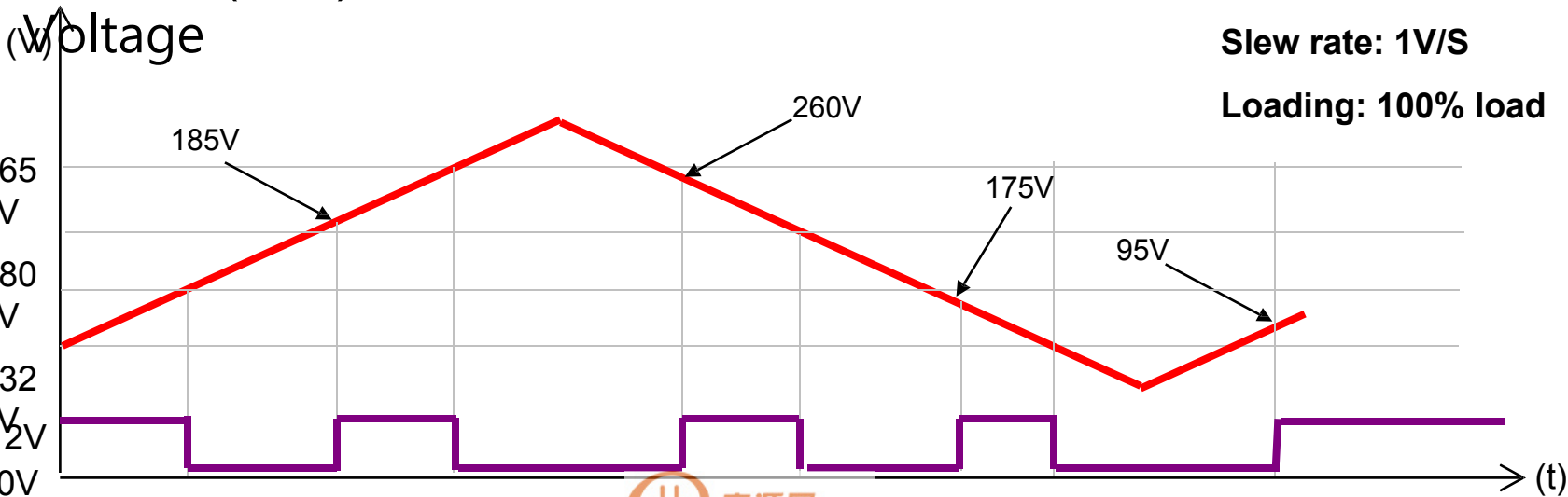


## 服务器电源输入规格

PARAMETER	MIN	RATED	MAX
Voltage (Low Line)	90V	100V	132V
Voltage (High Line)	180V	200-240V	264V
Frequency	47 Hz	50 – 60 Hz	63 Hz
Current (Low Line)			9.2A @100VAC
Current (High Line)			8.2A @200VAC
Input Power (Low Line)			1015W @115VAC
Input Power (High Line)			1650W @230VAC

## 测试项目与测试程序:

输入电压(频率)缓升/降测试/ Brownout / Under



PS be capable of start-up with full load at 90Vac input.

**输入源瞬间变化测试1:** 验证PSU在输入源从高压瞬间变化到低压再回到高压输入 例如:  
改变输入电压从264V to 90V再回到264V.

**Criteria:**

PSU不能毁损

**输入源瞬间变化测试 2:**

Load condition	Win frequency	Test condition
Maxload	50Hz	Change Vin from 200V to 100V for 10 cycles , then go back to 200V
Maxload	50Hz	Change Vin from 200V to 140V for 25 cycles , then go back to 200V
Maxload	50Hz	Change Vin from 200V to 160V for 50 cycles , then go back to 200V
Maxload	60Hz	Change Vin from 200V to 100V for 12 cycles , then go back to 200V
Maxload	60Hz	Change Vin from 200V to 140V for 30 cycles , then go back to 200V
Maxload	60Hz	Change Vin from 200V to 160V for 60 cycles , then go back to 200V

**Criteria:**

PSU仍能正常工作. No drop down on the output/s and signal pins during test.

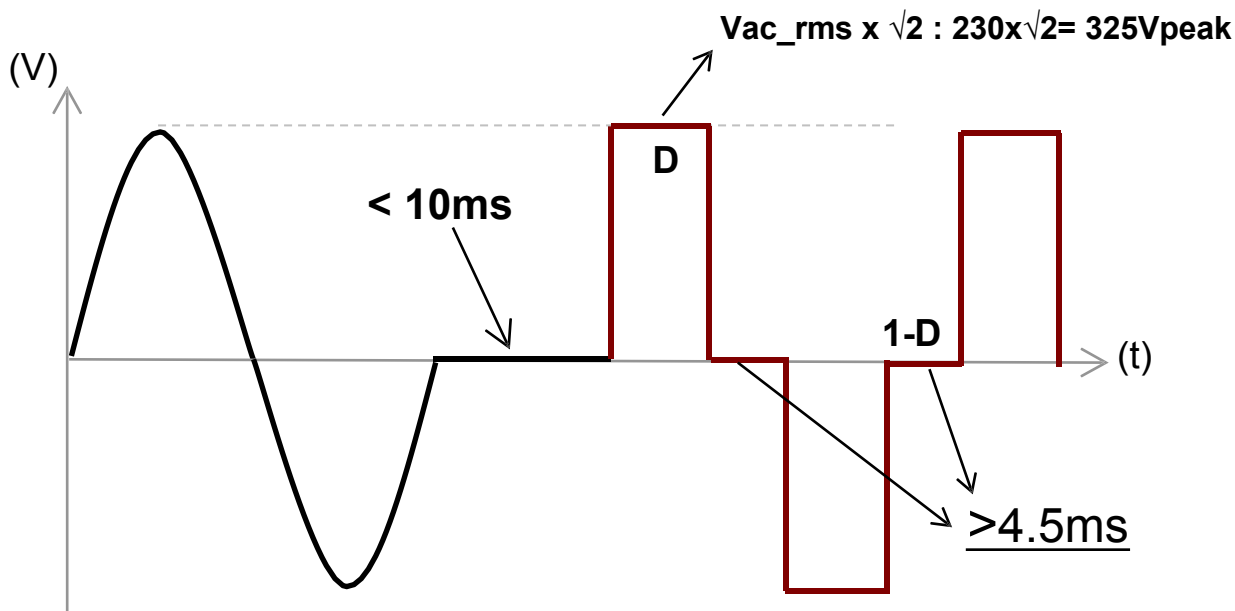
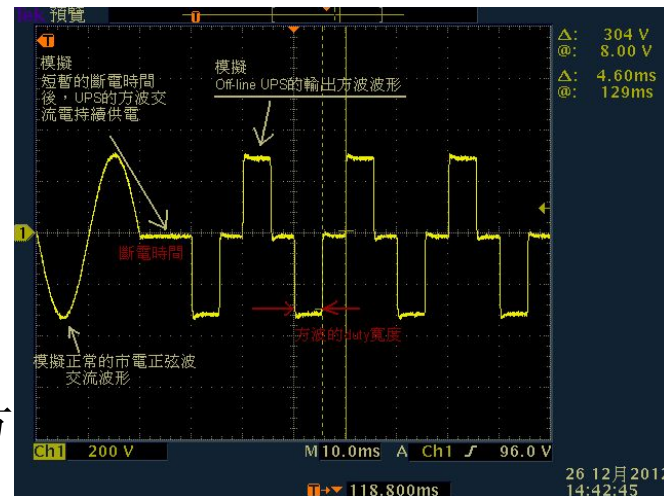


## UPS输入波形模拟规范:

- 1.UUT不可自行关机
- 2.UUT必须要能开机并工作在规格范围内

## 测试条件:

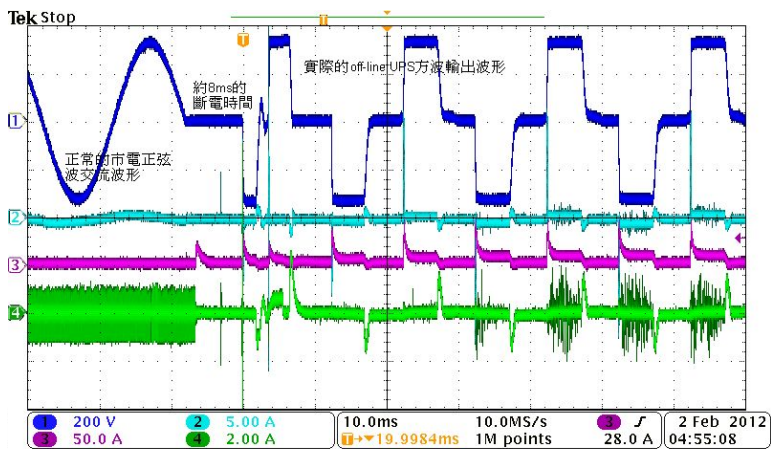
- 1.On-line转换Backup的转换时间 < 10ms
- 2.方波输出(1-D) > 4.5ms



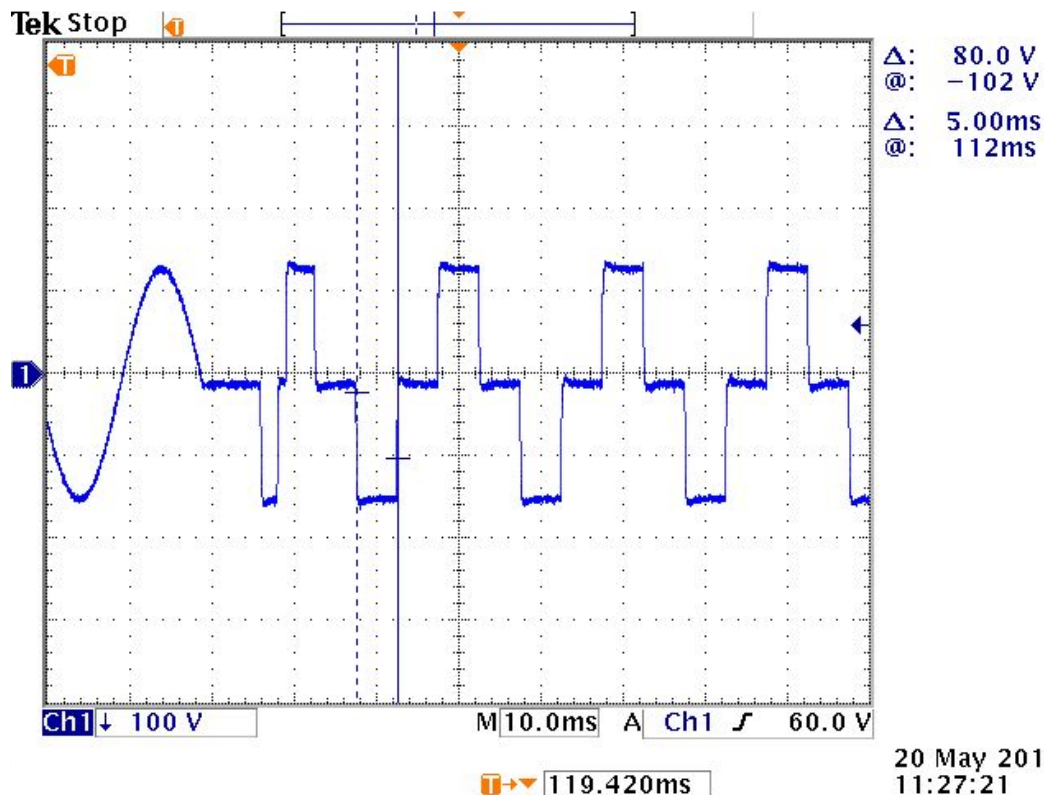
$$V_{peak} = V_{batt} \times Tr$$

$$V_{rms\_square} = V_{peak} \times \sqrt{D}$$

$$D = (V_{rms\_square} / V_{peak})^2$$



Back up UPS实际输出波形



AC source程序设计模拟UPS输出的波形

Note:

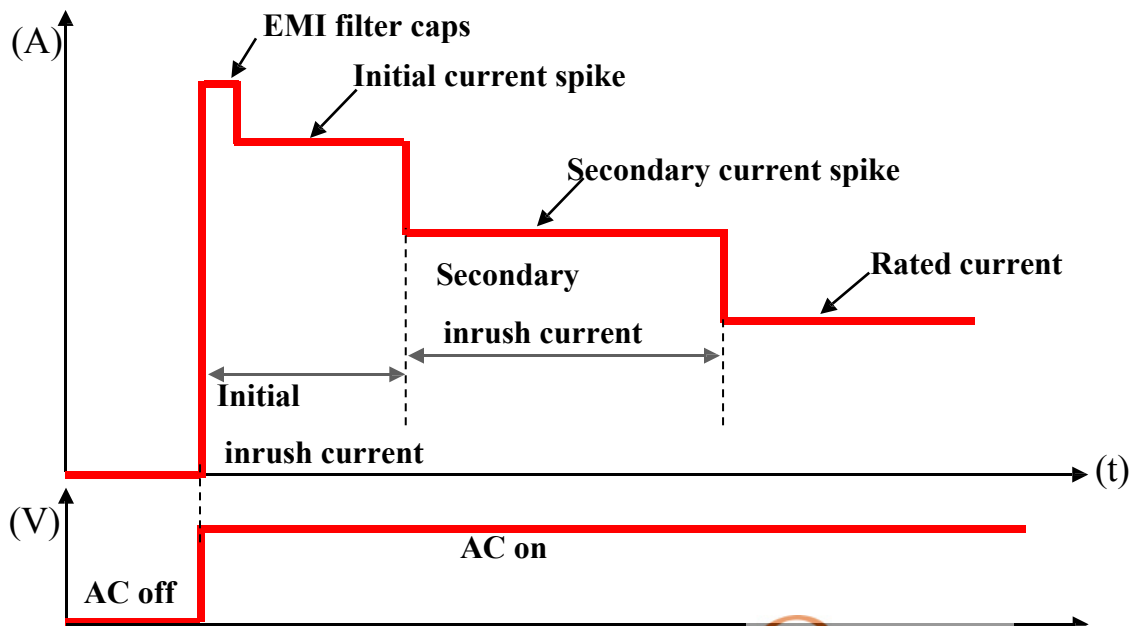
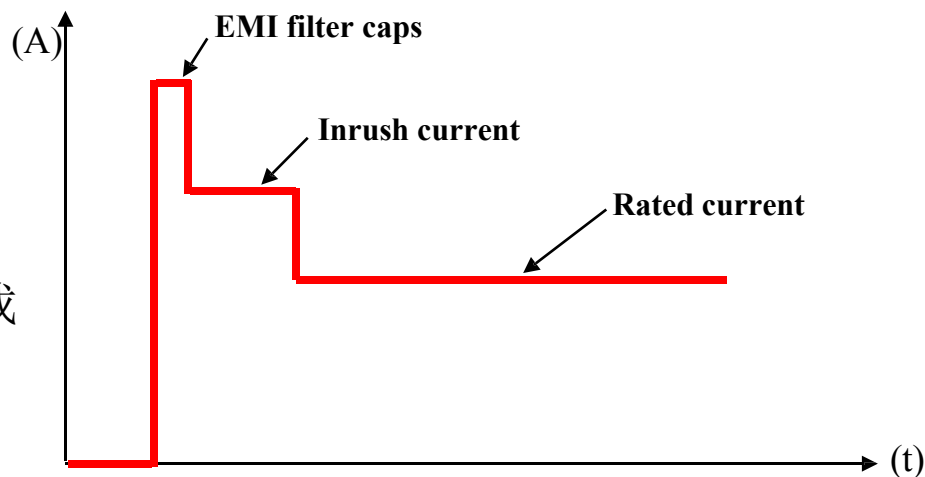
利用Chroma AC source(61500系列)的使用者波形编辑器和list模式功能来仿真UPS的波形。

## 涌浪电流规格:

不超过30A

## 测试条件:

1. 90度相角冷启动(90V/180V)并拉满载
2. 拉满载时热插入



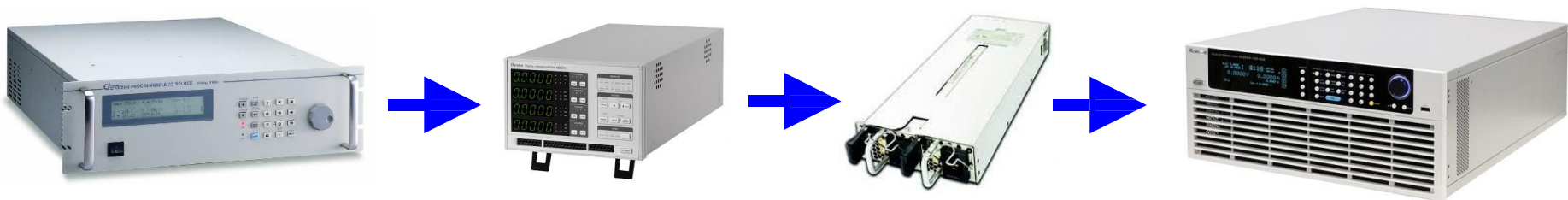
# 输出端特性测试

## 效率规格 & 测试条件

最大功率损耗：关机/无载状态

Input Condition(s)	Load Condition(s)	V12SB Load [A]	V12 Load [A]	Fan Condition	Max Power Dissipation [W]
115VAC 230VAC	1. Standby Power Save Mode	OFF	OFF	OFF	1
	2. Standby Mode / No Load	0	OFF	MIN RPM	5
	3. Output Enabled / No Load	0	0	MIN RPM	8

效率的要求越高越好，无载功耗要求越来越低，所以仪器的精准度非常重要以避免量测判断错误。



# 效率(Single Output)



## 工作中最小效率要求

Input Condition(s)	Load Condition(s)	V12SB Load [A]	V12 Load [A]	Output Watts [W]	Minimum Efficiency [%]
115VAC	10% load current	0.18	7.32	90	85
	20% load current	0.4	14.6	180	89
	50% load current	0.9	36.6	450	92
	100% load current	1.8	73.2	900	89
230VAC	10% load current	0.25	12.25	150	87
	20% load current	0.50	24.5	300	91
	50% load current	1.20	61.3	750	94
	100% load current	2.45	122.5	1500	91

80PLUS 认证		銅牌 80 PLUS BRONZE	銀牌 80 PLUS SILVER	金牌 80 PLUS GOLD	白金 80 PLUS PLATINUM	鈦金 80 PLUS TITANIUM
电源负载	115V / 230V	115V / 230V	115V / 230V	115V / 230V	115V / 230V	115V / 230V
10% 轻载	--	--	--	--	--	-- / 90%
20% 轻载	80% / --	82% / 81%	85% / 85%	87% / 88%	90% / 90%	-- / 94%
50% 典型负载	80% / --	85% / 85%	88% / 89%	90% / 92%	92% / 94%	-- / 96%
100% 满载	80% / --	82% / 81%	85% / 85%	87% / 88%	89% / 91%	-- / 91%



### Efficiency Requirements for PSUs

Power Supply Type	Rated Output Power	10% Load	20% Load	50% Load	100% Load
Multi-output (Ac-Dc)	All Output Levels	N/A	85%	88%	85%
Single-output (Ac-Dc)	All Output Levels	80%	88%	92%	88%

ENERGY STAR Program Requirements for Computer Servers – Eligibility Criteria (Rev. Apr-2013)

### Test Methods for ENERGY STAR Qualification

Product Type or Component	Test Method
All	ENERGY STAR Test Method for Computer Servers (Rev. Apr-2013)
All	<u>Standard Performance Evaluation Corporation (SPEC) Server Efficiency Rating Tool (SERT), Version 1.0.0, Rev. Feb 26, 2013</u>



### List of Accepted Power Analyzers

Manufacturer	Model	First Supported in PTDaemon Version *	Restrictions on Use with SPECpower_ss2008
Chroma	66202	v1.3.9	Valid only for low shunt ranges (0.01, 0.1, 0.4, 2.0 A RMS) and the 20A RMS high shunt range.
Chroma	66203 & 66204	v1.6.3	Only the use of one channel at a time is supported.

## Generalized Test Protocol for Calculating the Energy Efficiency of Internal Ac-Dc and Dc-Dc Power Supplies Revision 6.6

### 5.5 Measurement Instrumentation Accuracy

Power measurements shall be made with a suitably calibrated voltmeter and ammeter or power analyzer as specified under IEC 62301. Measurements of power of 0.5 W or greater shall be made with an uncertainty of less than or equal to 0.5% at the 95% confidence level.

Measurements of power of less than 0.5 W shall be made with an uncertainty of less than or equal to 0.01 W at the 95% confidence level.

Dc measurements for voltage shall have an uncertainty of less than 0.1%. Current and Power measurements shall have an uncertainty of less than 0.5%.



## 输出功率规格:

Vin Range	Pmax [W]
90VAC – 108VAC	800
108VAC – 132VAC	900
180VAC – 264VAC	1500

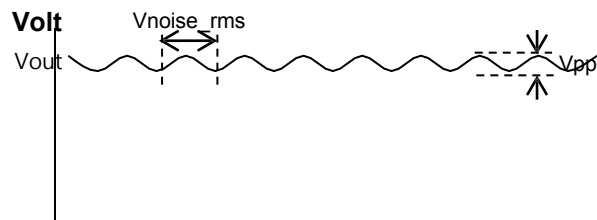
## 输出电流规格:

Number of Power Supplies in Parallel	V12SB Min Current [A]	V12SB Max Current [A]	V12 Min Current [A]	V12 Max Current [A]
1	0	2.5	1*	$P_{max}/12$
2	0	2.5	1*	$1.9 * P_{max}/12$
3	0	2.5	1*	$2.85 * P_{max}/12$
4	0	2.5	1*	$3.8 * P_{max}/12$
5	0	2.5	1*	$4.75 * P_{max}/12$
6	0	2.5	1*	$5.7 * P_{max}/12$

\*The power supply unit shall be capable of operating indefinitely with ~~0A~~ load on V12 and V12SB outputs at all line input and operating ambient conditions.

## 输出电压规格:

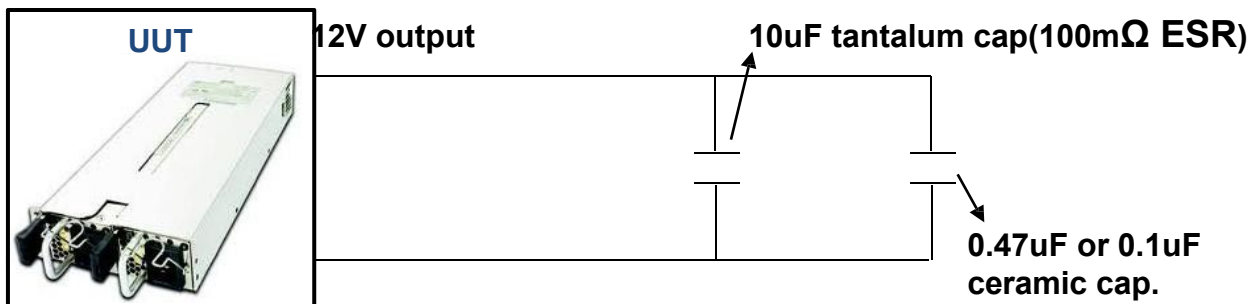
Output	Min [V]	Nominal [V]	Max [V]	Load at Setpoint [A]
V12	12.27	12.30	12.33	1.0
V12SB	11.97	12.00	12.03	0.1



## 涟波/噪声规格:

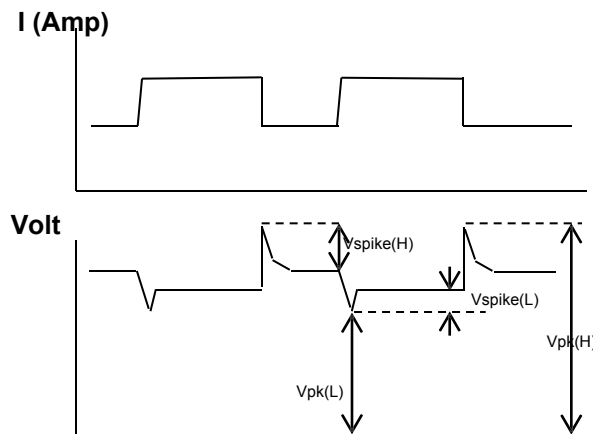
OUTPUT	MAX RIPPLE [mV pk-pk]
V12	120
V12SB	120

## 测试条件:



## 动态负载稳定度规格:

OUTPUT	MIN [V]	MAX [V]	Condition / Duration <sup>①</sup>
V12	11.60	12.60	Normal Operating conditions / At all times
V12SB	10.80	13.20	



## 测试条件:

OUTPUT	STEP LOAD CHANGE	SLEW RATE [A/usec]	MIN CAPACITIVE LOAD [uF]	TEST DESCRIPTION
V12	50% <i>minimum static load of 1A)</i>	$\leq 0.5$	2,200	Applies to single and redundant configurations.
V12	65-130% <i>10ms pulse duration</i>	$\leq 0.5$	2,200	
V12SB	100% <i>(minimum static load of 0A)</i>	$\leq 0.5$	270	

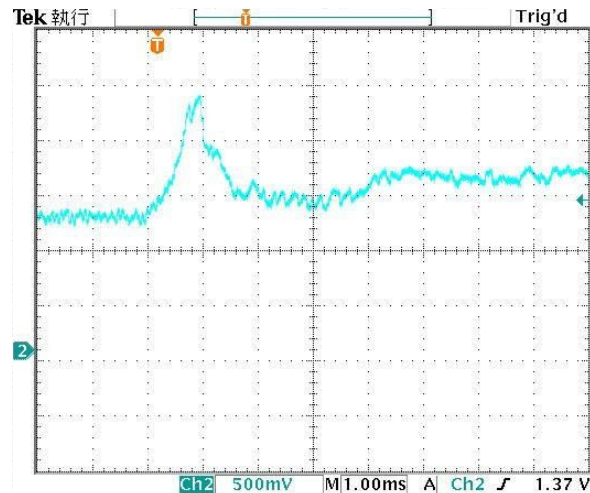
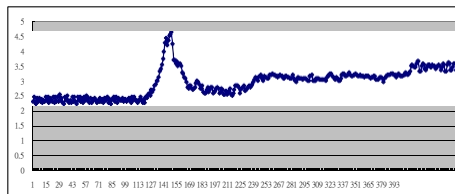
# 使用者自定义波形

## UDW仿真实际负载电流波形测试主要目的:

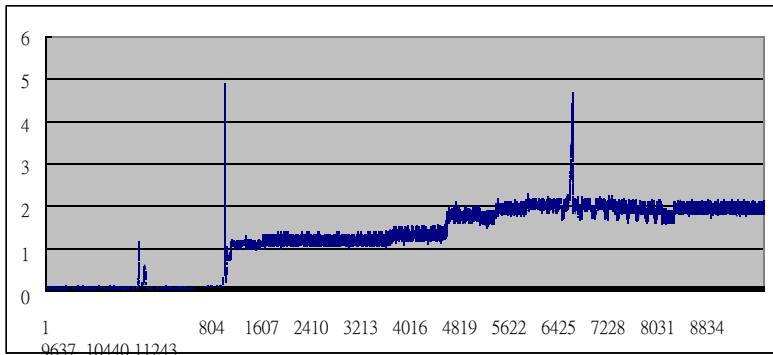
仿真复制实际终端系统的负载电流波形，在实验室或产线既可了解server power的输出特性是否符合系统需求。

## 测试条件:

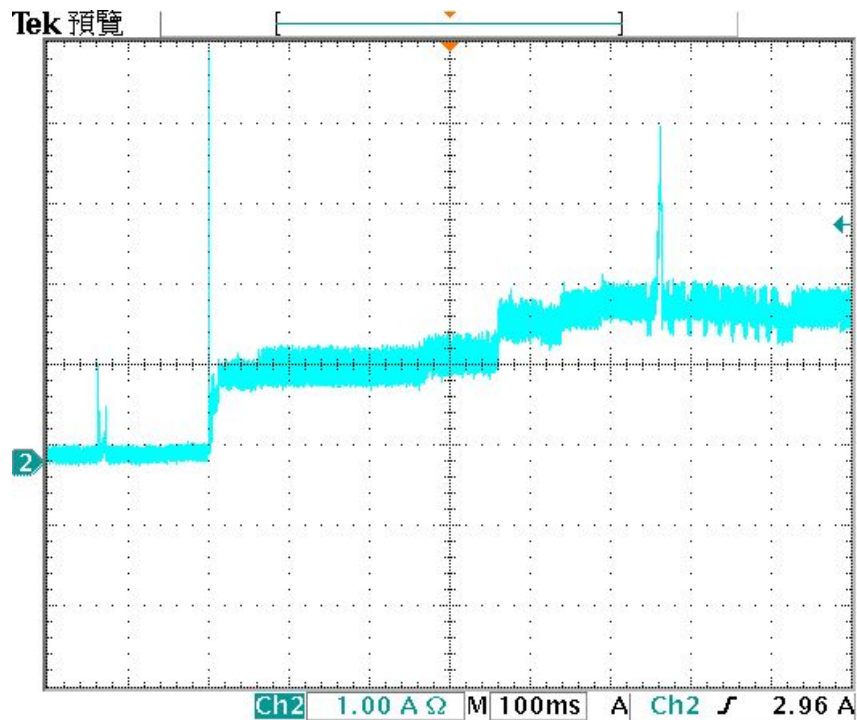
用户自行定义负载电流波形。



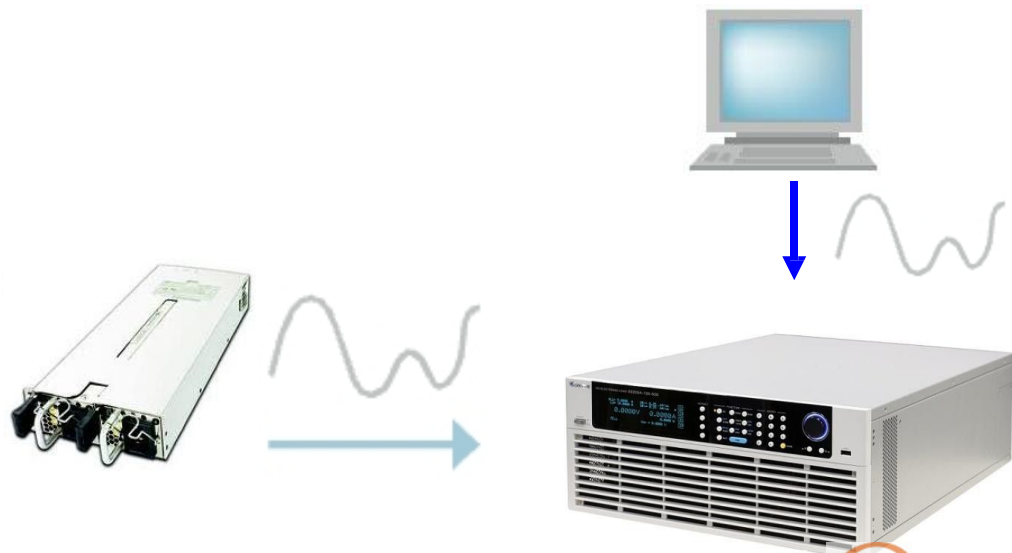
# 使用者自定义波形



终端系统startup时，实际电源供应器的输出电流波形



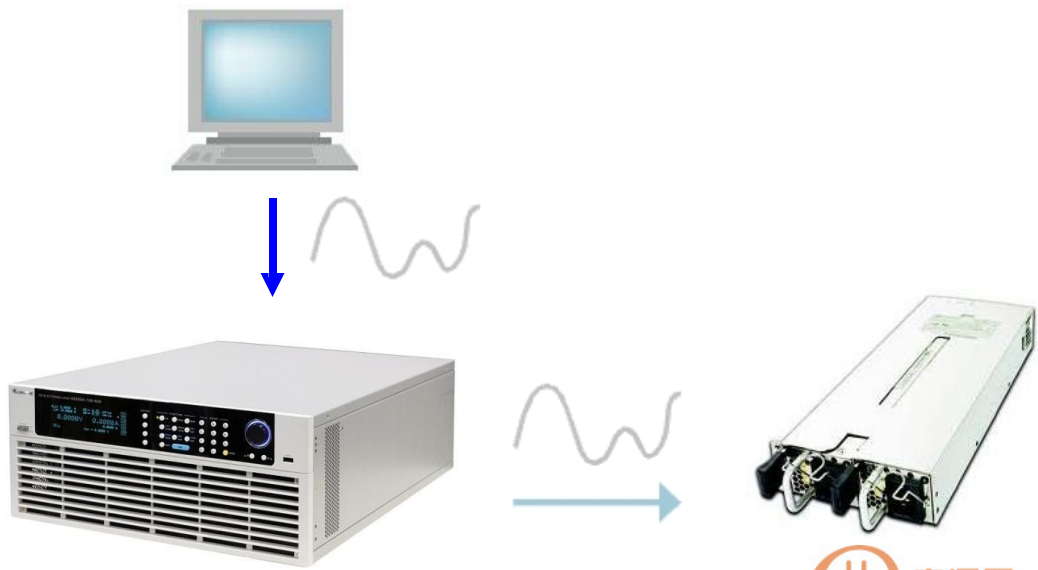
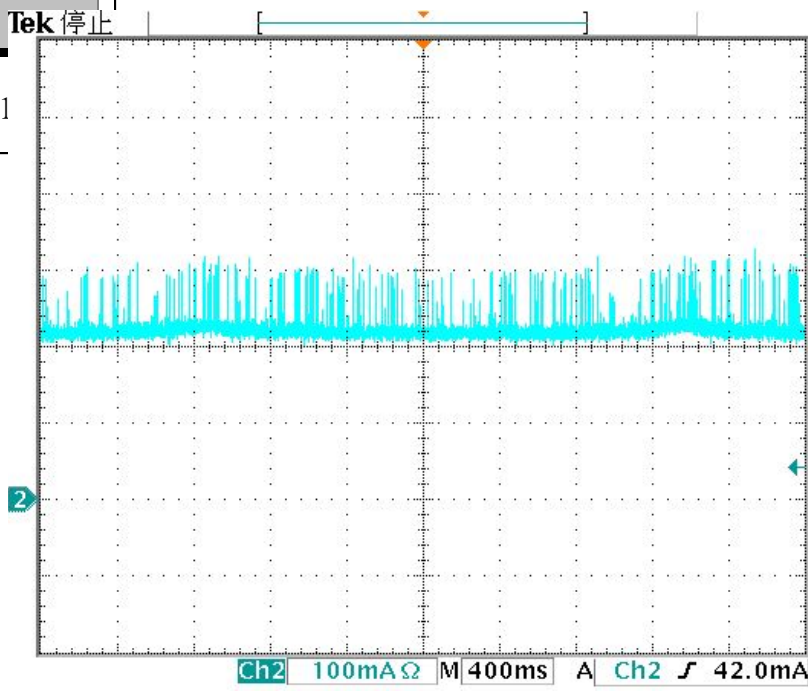
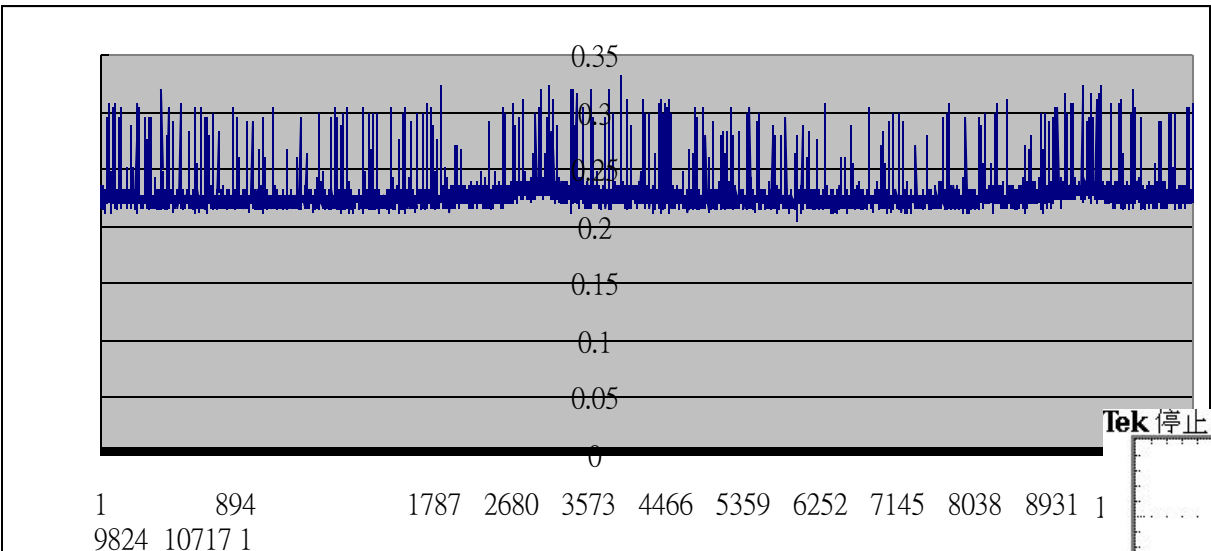
利用直流电子负载仿真的拉载电流



# 使用者自定义波形



终端系统在standby时实际电源供应器的输出电流波形



## 输出瞬时响应规格:

在任何系统的负载变动条件下，电源供应器都必须能稳定工作。

OUTPUT	MIN [V]	MAX [V]	Condition / Duration <sup>①</sup>
V12	11.60	12.60	Normal Operating conditions / At all times
V12SB	10.80	13.20	

## 测试条件:

- 1.负载变动斜率1A/us
- 2.负载变动频率50Hz~10kHz
- 3.V12、V12SB负载同步变动

## 测试系统判断:

找出待测物输出最不稳定时，发生在何种频率，duty的条件下。



- 公司简介
- 大功率电源
- 测试项目
- 测试解决方案





交流电源供应器  
61500系列



功率计  
66200系列



高功率电子负载  
63200A系列



服务器电源

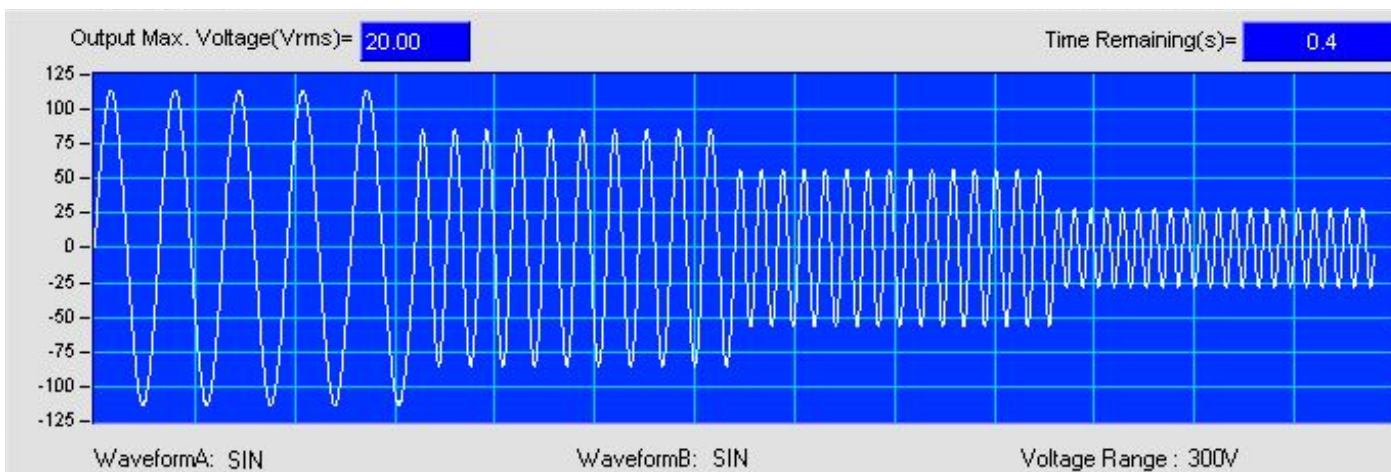
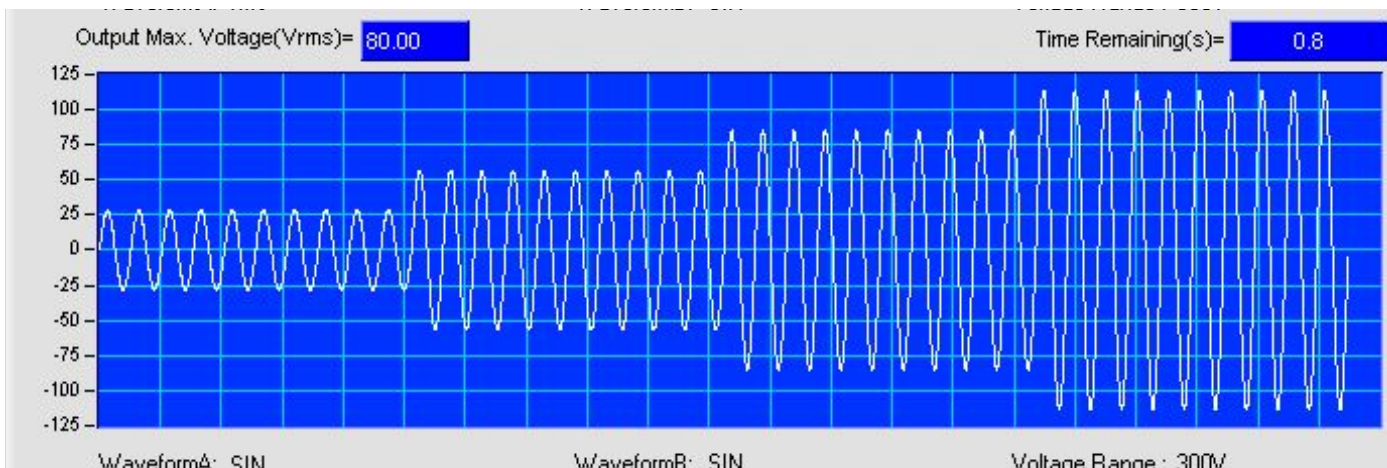
通讯电源

## 交流电源特点

- 功率范围：500VA – 18kVA
- 频率范围：15Hz – 1.5kHz
- 交流+直流输出模式提供直流电压偏移仿真
- LIST、PULSE、STEP模式功能可仿真电力线干扰测试
- 可符合IEC 61000-4-13标准针对谐波及间谐波规定项目做测试
- 可模拟IEC 61000-4-11标准针对电压突降，短路中断和电压变化规定项目做测试
- 高输出电流波峰因子特性，为浪涌电流测试最好选择



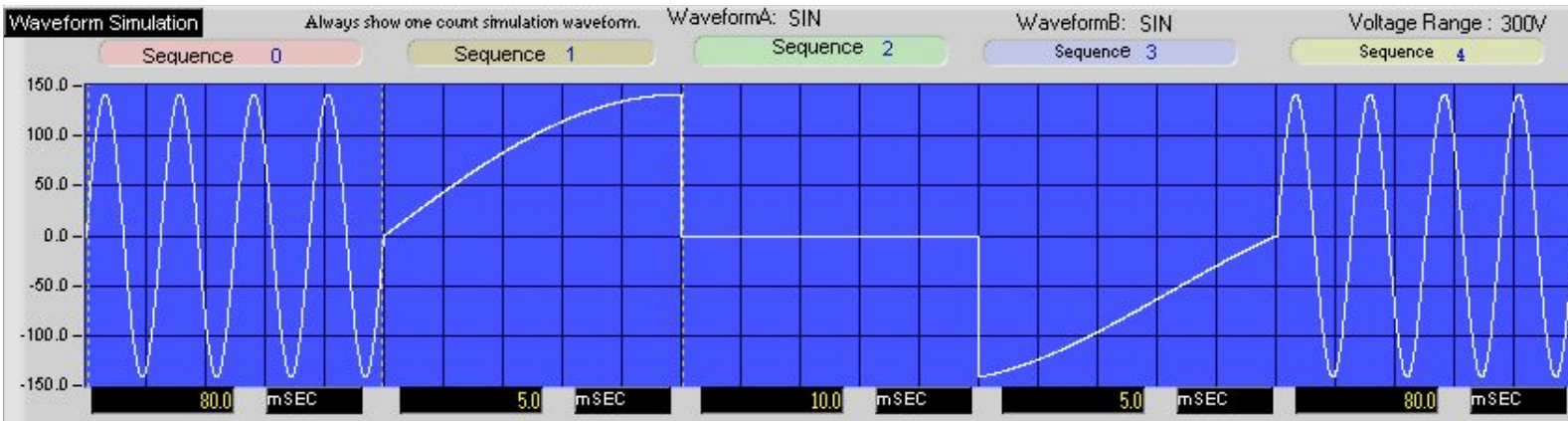
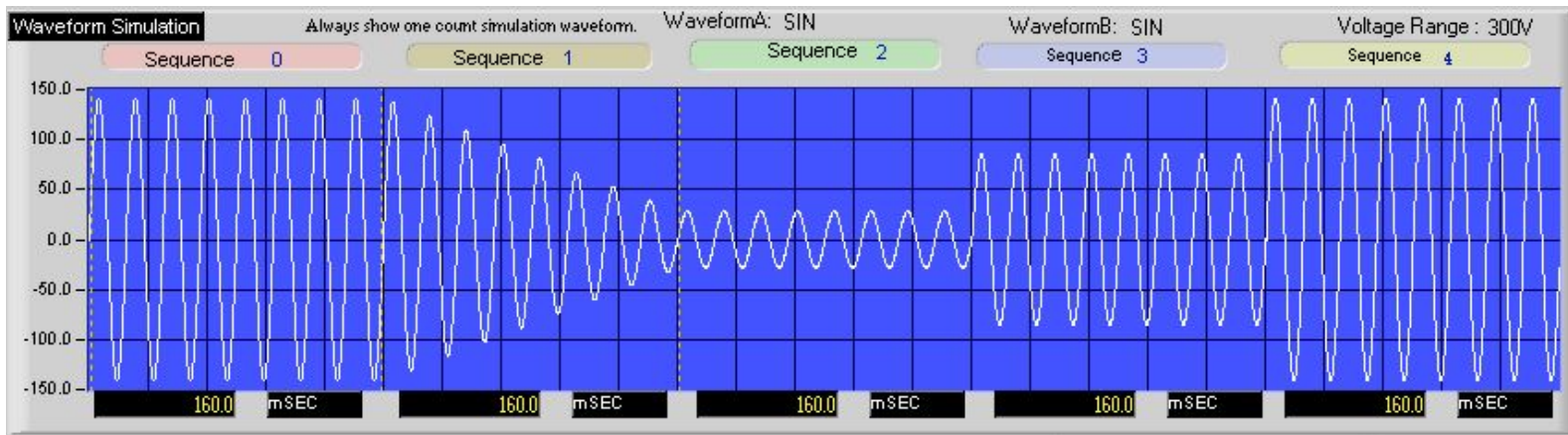
以下电压波形均透过Softpanel编辑



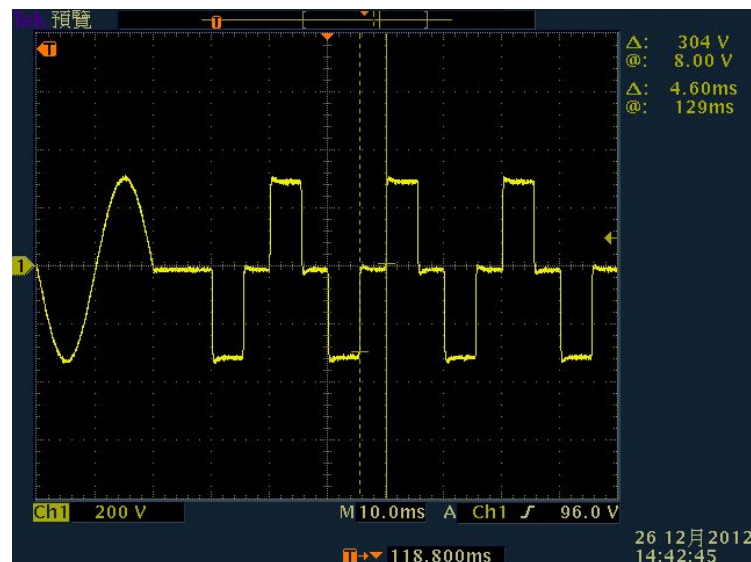
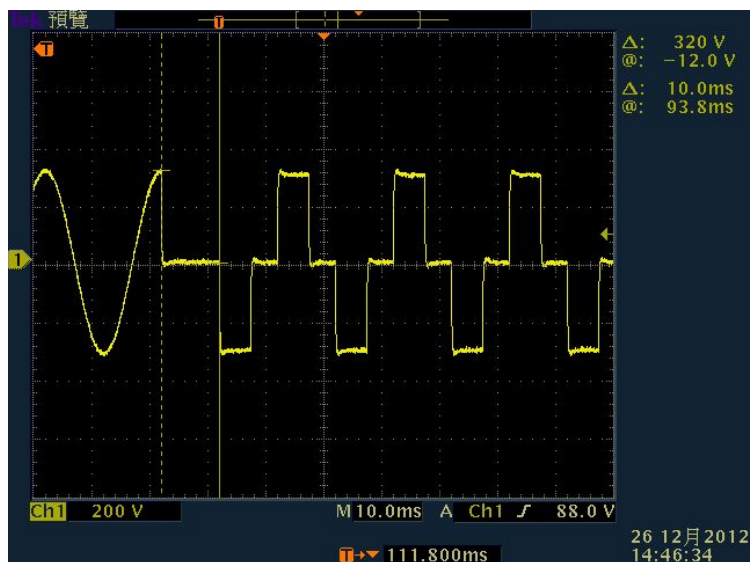
**STEP Mode : Change from an initial voltage to destination step by step**



以下电压波形均透过Softpanel编辑



**LIST Mode: Program output waveform sequence by sequence**



AC source模拟UPS输出的波形

Note:

利用Chroma AC source(61500系列)的使用者波形编辑器和list模式功能来仿真UPS的波形。

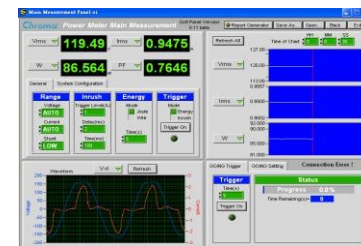


## 功率计特点

- 电压档位：15/30/60/150/300/600Vrms
- 电流档位：0.005/0.02//0.05/0.2/0.5/2/5/20Arms
- 频率范围：DC, 15Hz – 10kHz
- 支持多种接线方式功率量测  
(1P2W/1P3W/3P3W/3P4W)
- 支持外部分流器和CT以符合电流量测需求
- 符合能源之星/IEC62301/ErP/EN50564量测需求
- 可使用能量累积法量测功率，适用于负载变动的产品
- 可量测涌浪电流(Inrush Current)及能量(Energy)
- 电压/电流谐波量测至50阶



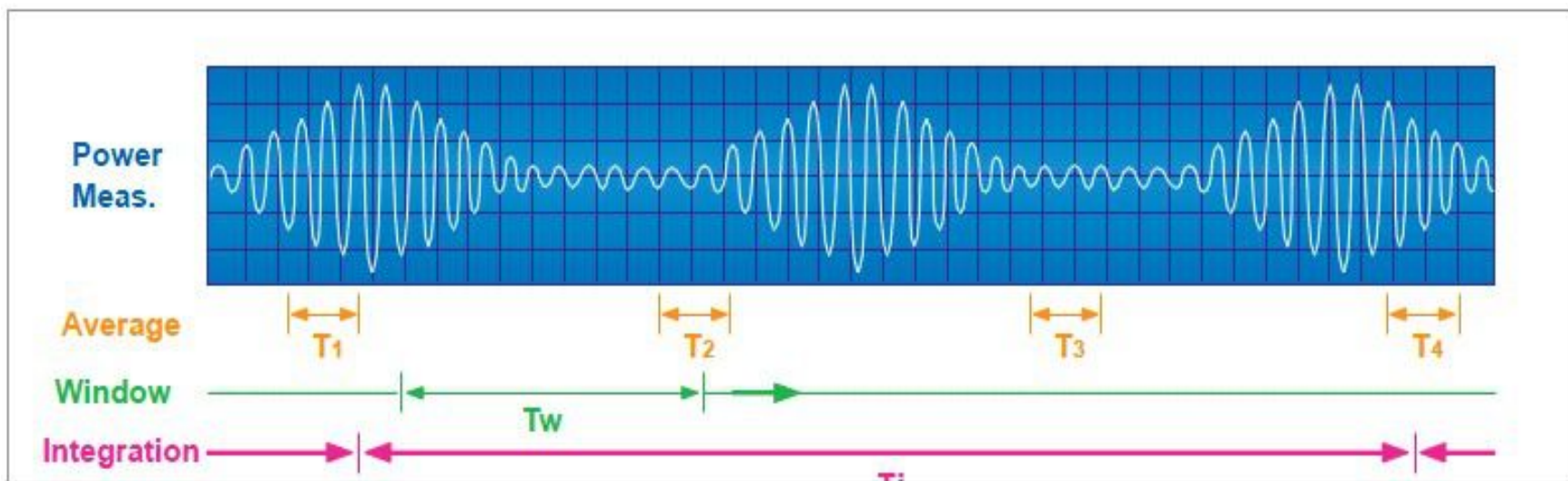
- 测试应用: 1.输入电压、浪涌电流、RMS和峰值电流、输入功率和功率因子的量测
- 2.平均效率测试
- 3.待测物无载功率损耗量测



## List of Accepted Power Analyzers

Manufacturer	Model	First Supported in PTDaemon Version *	Restrictions on Use with SPECpower_ssj2008
Chroma	66202	v1.3.9	Valid only for low shunt ranges (0.01, 0.1, 0.4, 2.0 A RMS) and the 20A RMS high shunt range.
Chroma	66203 & 66204	v1.6.3	Only the use of one channel at a time is supported.

## 功率量测：平均模式、窗口模式与积分模式



**平均模式：**主要应用于稳态波形的量测，如待机功率量测。

**窗口模式：**用户设定时间长度，量测并计算窗口内所有数据。

**积分模式：**使用者设定一段时间，在此时间内会对电压及电流的瞬间功率积分，得到能量(焦耳)，将能量再除以时间以获得真正平均功率，适用于非稳态的功率量测。



## 高功率电子负载特点

- 电压范围：150V、600V、1,200V
- 电流范围：最高达2,000A
- 主从并联控制，最多达20台
- 同步动态控制
- 使用者自定义电流波形
- 自动变频动态扫描(Sweep)
- 可编程256组电流时序
- 过电流、过功率量测
- 外部信号控制



- 量测精准度全球第一
- 电压量测精度: **0.015%+0.015%F.S.**
- 电流量测精度: **0.04%+0.04%F.S.**

一服务器电源规格: 12V / 75A / 900W、效率: 90%

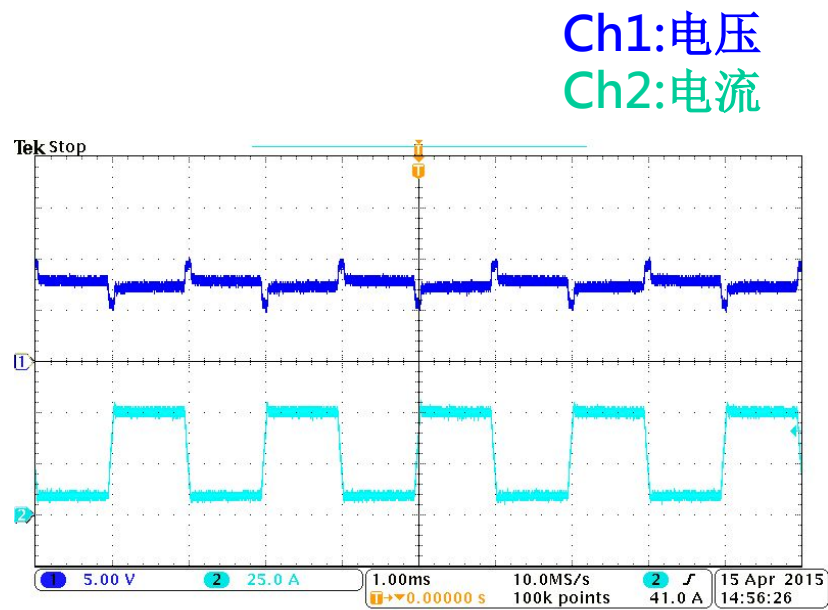
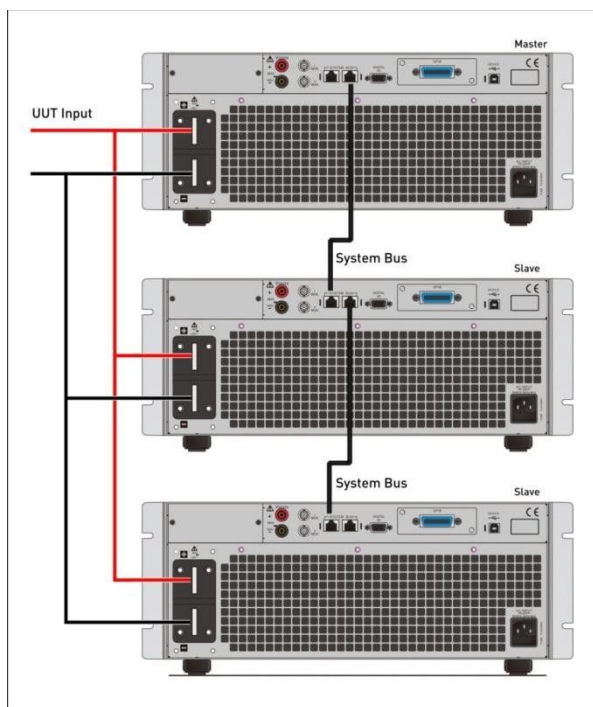
		Chroma 63200A-150-500			Max 4700-6		
	900	Min.	Max.		Min.	Max.	
Power	12	0.0042	11.9958	12.0042	0.0144	11.9856	12.0144
Voltage	75	0.13	74.87	75.13	0.45	74.55	75.45
Current	Power Tolerance	898.1255	901.8755		899.52648	906.48648	
	Total Power Tolerance	Min.	Max.		Min.	Max.	
		898.1255	901.8755		899.52648	906.48648	
	Eff% Tolerance	89.81%	90.19%		89.95%	90.65%	
	Eff% Error Range	0.38%			1.30%		

- 以63206A-150-600与63203比较
- 电压、电流规格：分别为三个档位
- 更大的操作电压、更宽的拉载电流，提供使用者更广的测试范围

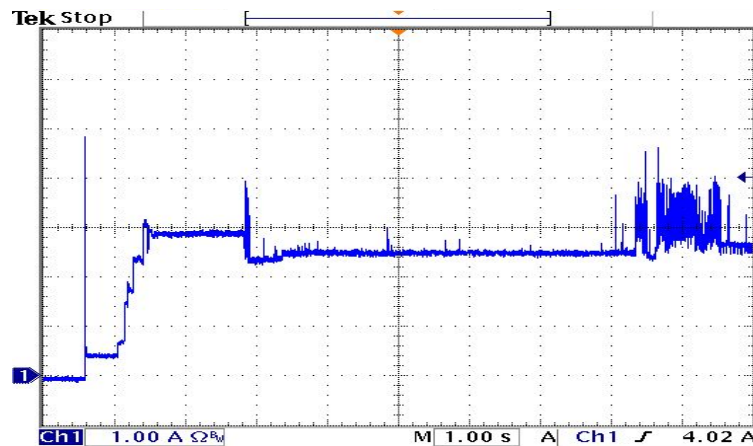
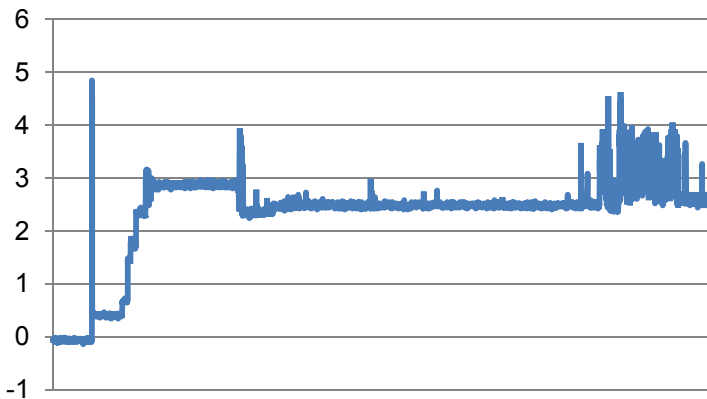
	63206A-150-600			63203	
Power	6,000W			5,200W	
Voltage	16V	80V	150V	16V	80V
Current	30A	300A	600A	30A	300A

于Config.内设定Parallel Mode: Master/Slave/None

可于Master设定并读取量测参数，仅能设定一个Master



- 将量测到的实际电流波形透过PC将实际电流储存至63200A系列，进而重复进行此实际电流波形的拉载与测试





## 输出瞬时响应:负载变化重复率50Hz – 10kHz

### 3.2.7. Output Transient Response

Table 13. summarizes the expected output transient step sizes for each output. The transient load slew rate is = 1.0 A/ $\mu$ s.

**Table 13. DC Output Transient Step Sizes**

Output	Max. step size (% of rated output amps per Sec 3.2.3) <sup>(1)</sup>	Max. step size (amps)
+12 V1DC	40%	
+12 V2DC	60%	
+5 VDC	30%	
+3.3 VDC	30%	
-12 VDC		0.1 A
+5 VSB		0.5 A

<sup>(1)</sup> For example, for a rated +5 VDC output of 18 A, the transient step would be 30% × 18 A = 5.4 A

Output voltages should remain within the regulation limits of Section 3.2.1, and the power supply should be stable when subjected to load transients per Table 13. from any steady state load, including any or all of the following conditions:

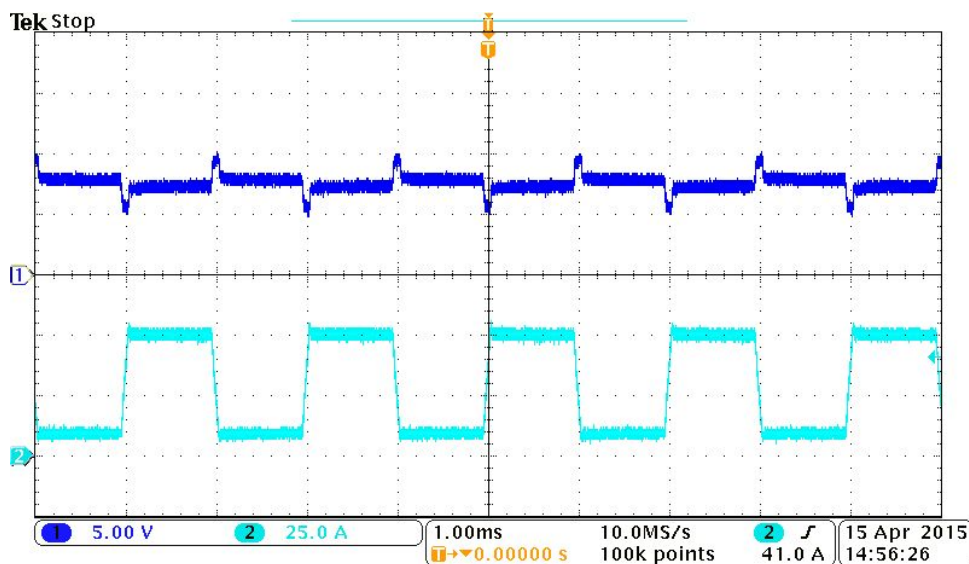
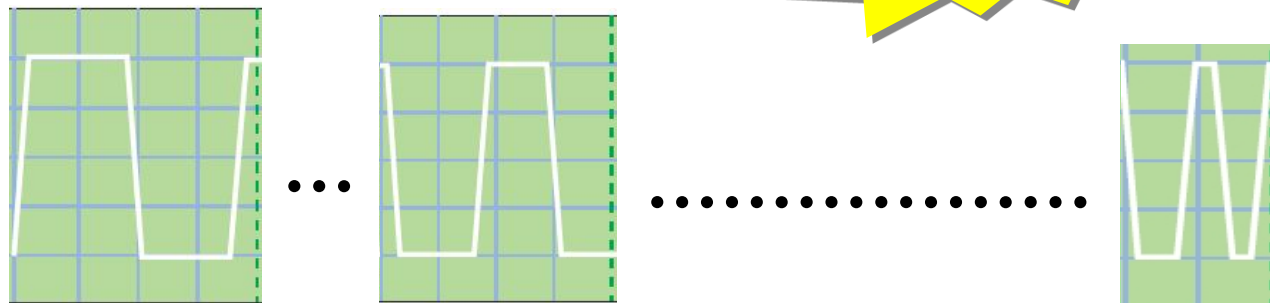
- Simultaneous load steps on the +12 VDC, +5 VDC, and +3.3 VDC outputs (all steps occurring in the same direction)
- Load-changing repetition rate of 50 Hz to 10 kHz
- AC input range per Section 3.1
- Capacitive loading per Table 14. .

Source: Intel ATX12V  
PSDG

# 测试解决方案 - 输出瞬时响应(Sweep)

手动测试：若测试100点，1个点测1分钟，则需要

**1 Hour & 40 Mins**



Ch1:电压  
Ch2:电流

## 于Advance内设定CC Sweep 功能

1. 设定  $I_{MAX}$ 、 $I_{MIN}$ 、 $F_{START}$ 、 $F_{END}$ 、 $F_{STEP}$ 、 $DWELL$ 、 $DUTY$ 、 $SR \nearrow$ 、 $SR \searrow$
2. 负载电流会根据设定开始拉载  $I_{MAX}$  与  $I_{MIN}$
3. 直到  $F_{END}$  停止拉载

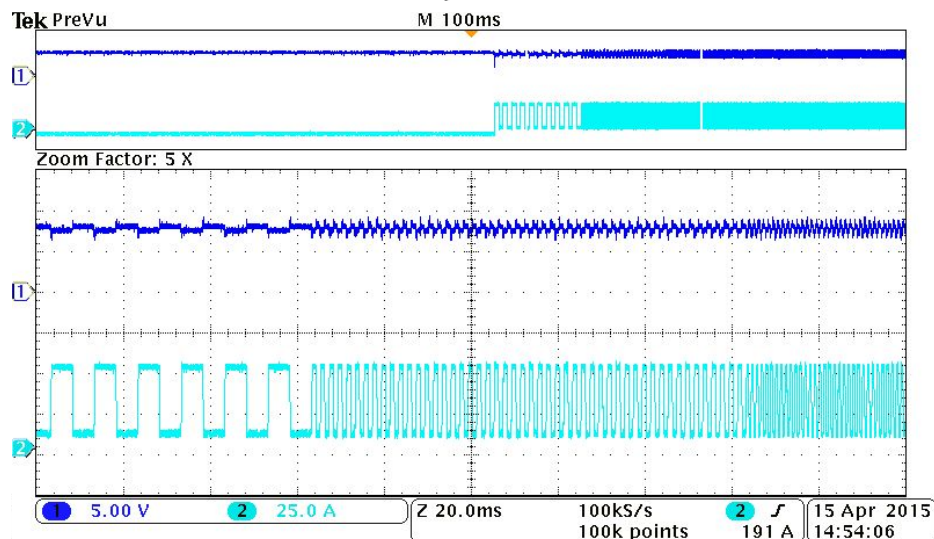
Ch1:电压  
Ch2:电流

CC Sweep功能: 自动动态负载频率扫描

记录  $V_{pk+}$  &  $V_{pk-}$  及发生的频率点

只需

**40 seconds**

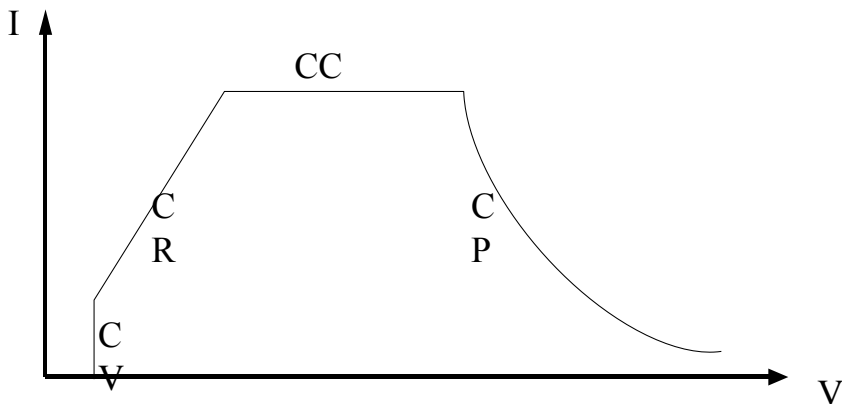




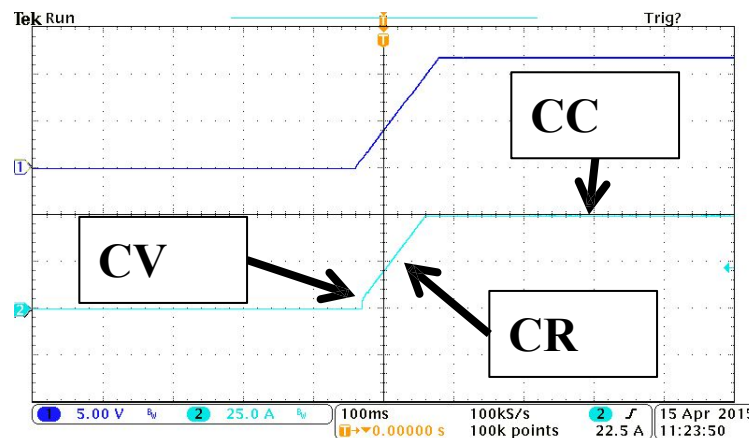
## 63200A系列其它附加的功能



- Auto Mode可在CV、CR、CC、CP模式间自动切换
- 应用于**锂离子电池充电器**的测试，以获得完整的V-I充电曲线
- 当待测物保护线路损坏时，可透过自动模式的自动切换模式机制来**避免待测物损坏**

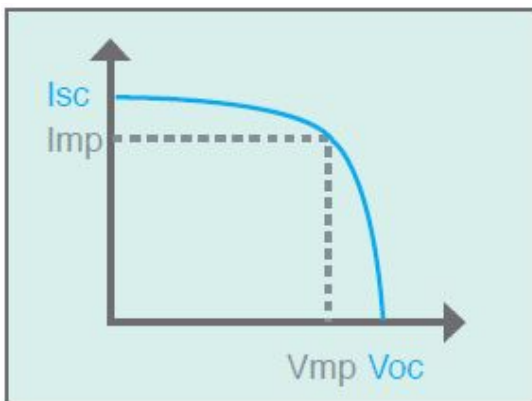


Ch1:电压  
Ch2:电流



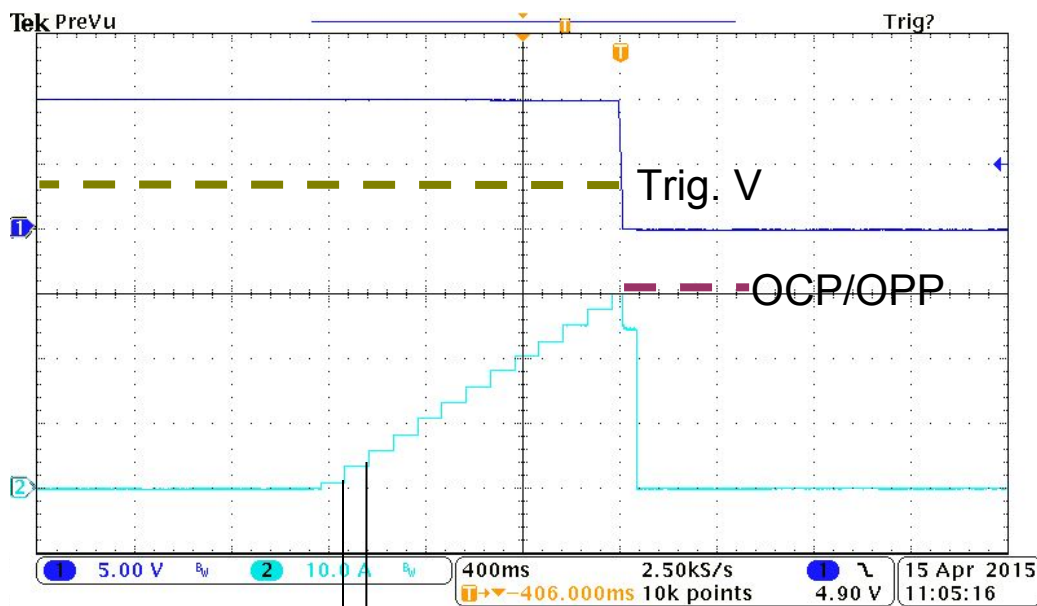
## ■ 应用在测试太阳能电池板的最大功率点追踪

于Advance内设定MPPT功能 无须设定，直接将太阳能电池板的输出端子接到电子负载，Load ON后电子负载则会以内建的算法追踪最大功率点，并计算出所消耗的总能量



# 自动且快速的测试OCP/OPP及Pmax点

- 调整负载电流，需使用示波器撷取电压/电流波形
- OCP & Pmax可能不会发生在同一点



Dwell time

Ch1:电压

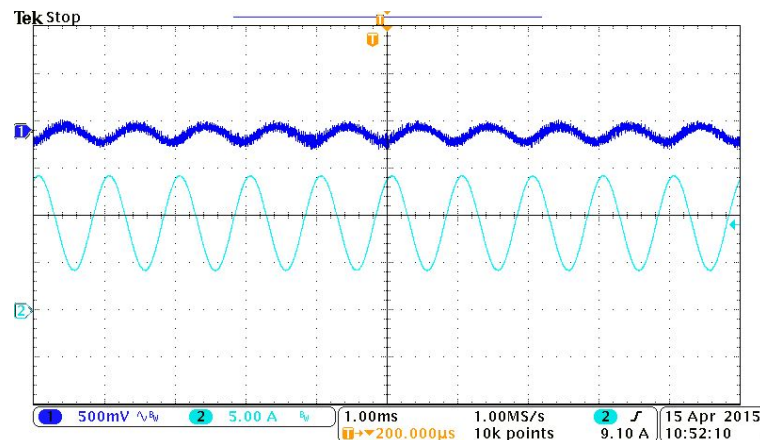
Ch2:电流

具有高速16-bit A/D  
同时取样V&I

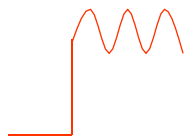
# 正弦波负载电流

Ch1:电压  
Ch2:电流

- 当进行动态测试时，因不同的电流波形，导致得到不同的Vpk测试结果
- 因此，以相同频率的动态负载来定义一致的测试情况



信号产生器



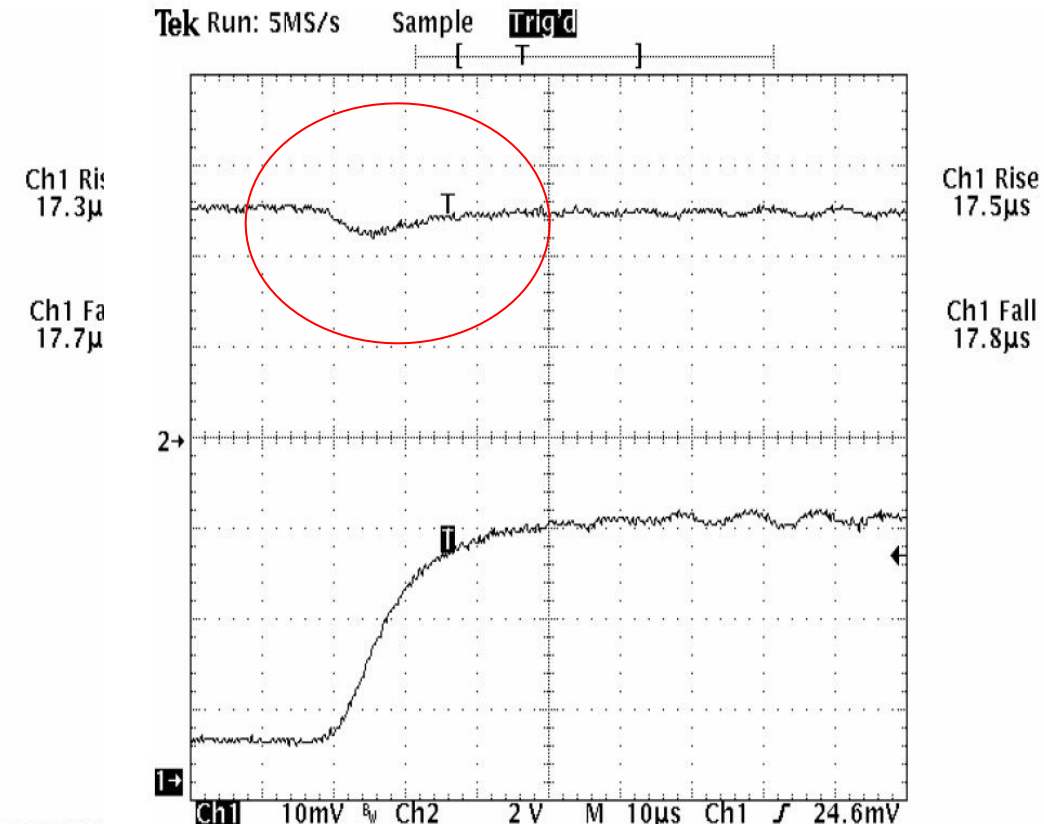
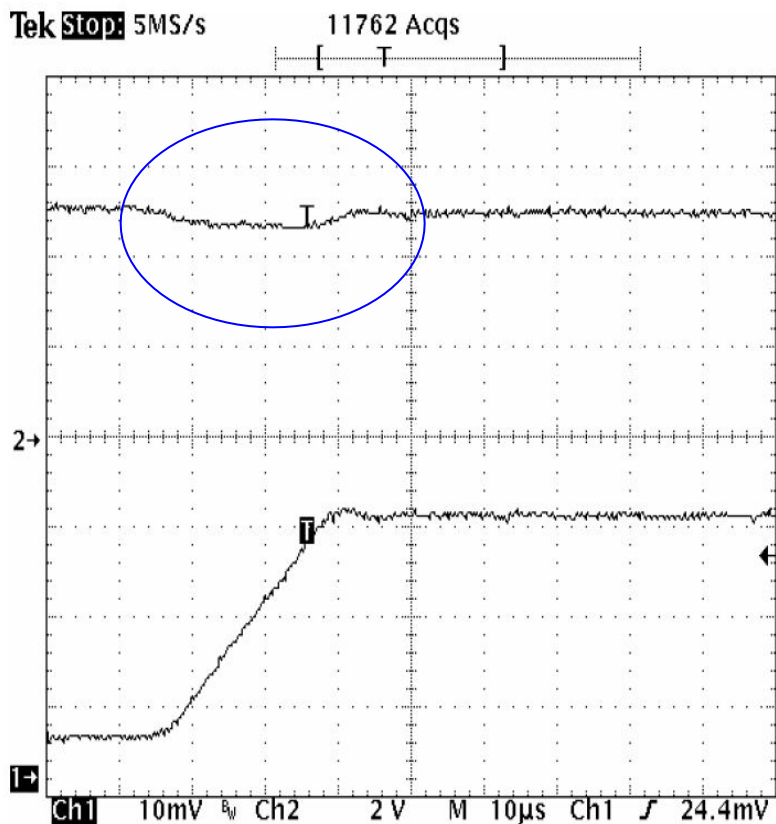
外部信号控制



# 正弦波负载电流

Example:

Dynamic current setting:  $H=6A$ ,  $L=1A$ ,  $T1=0.1ms$ ,  $T2=0.9ms$ ,  $S/R = 0.23A/\mu s$

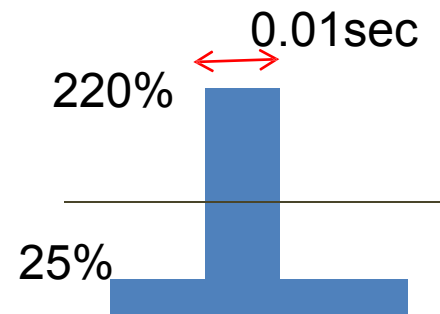
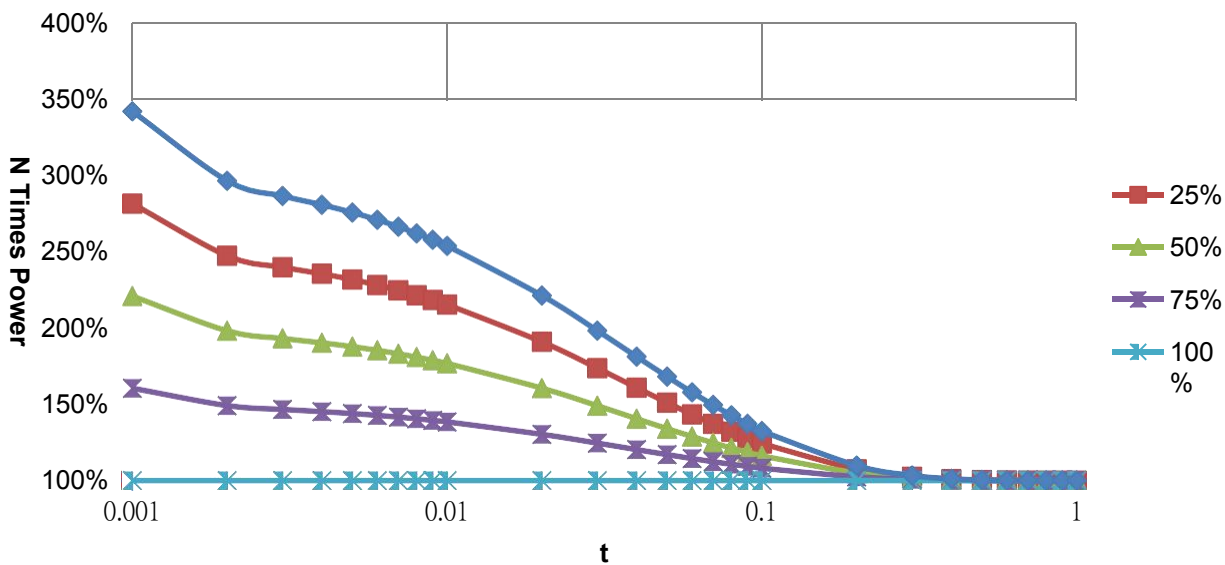


8 May 2016:01:00

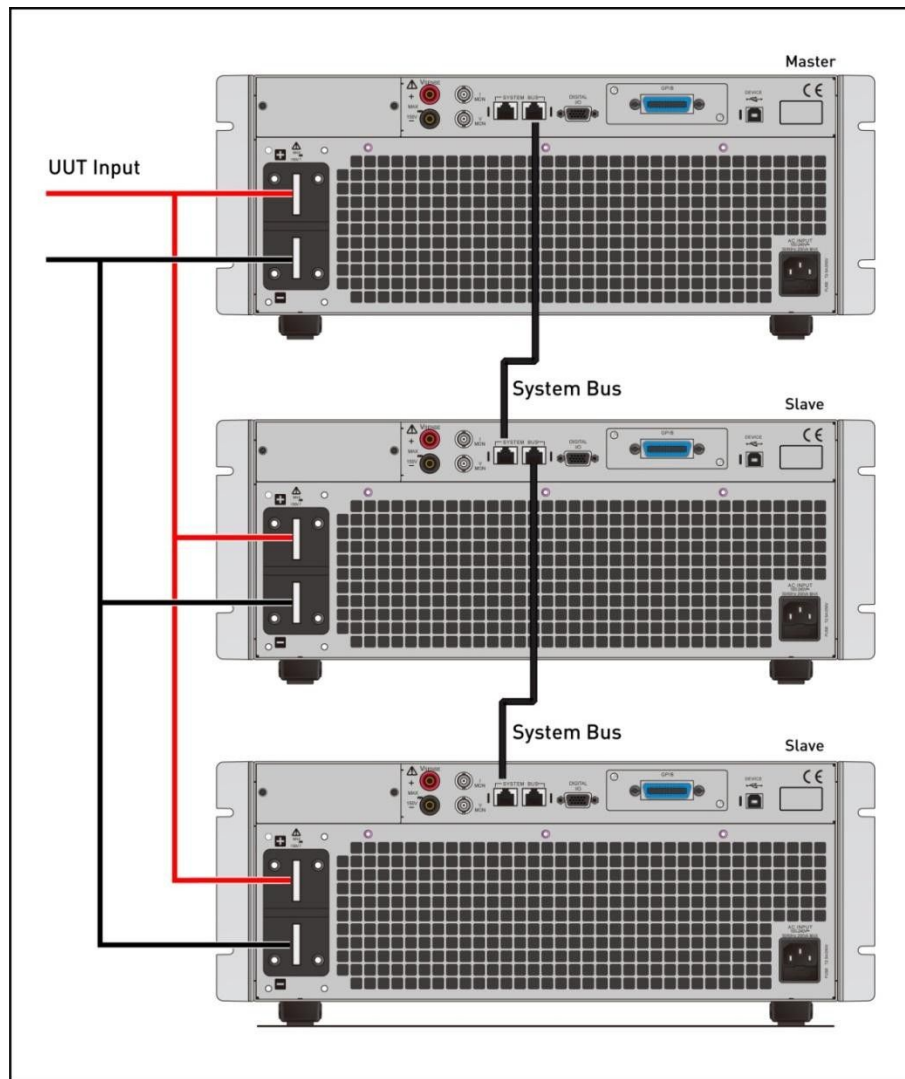
8 May 2002 15:47:04

# 三倍功率拉载

- 在额定电压与电流下，最大拉载瞬间功率可达**三倍**原额定功率
- 举例说明: 63205A-150-500 (150V / 500A / 5kW)
- 连续负载功率1.25kW(25%) → 瞬间功率可达11kW (220%)维持0.01秒



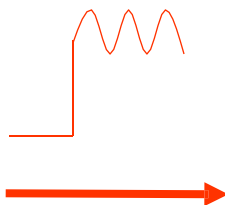
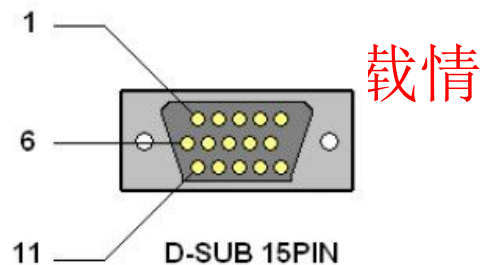
- 并联数可达20台
- 并联最大功率达480kW (24kW×20)
- 同电压/不同功率机种可混合并联
- 全系列均可整合于机架
- 可应用于大功率的电池放电、充电桩测试等
- 可与63600系列(Max. 4台)同步动态





- 除UDW功能可编辑任意电流波形外，63200A亦可透过外部信号控制来拉载任意电流波形

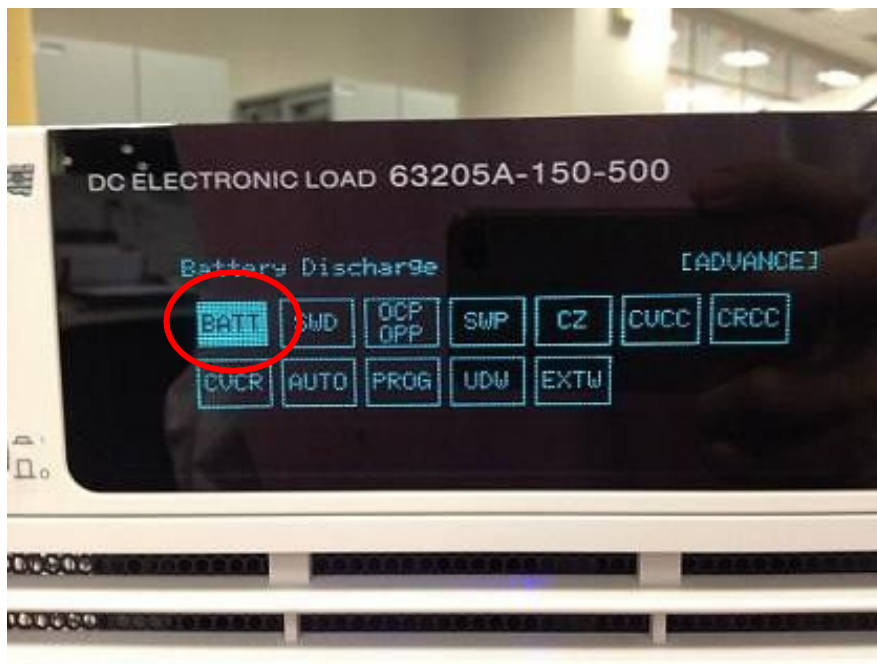
1. 选择Mode: CC、CR、CV 2. 应用于1况



- EXT V/I输入连接头位于后背板Digital IO中
- 外部信号0V至10V可对应到0至全刻度的拉载条件
- 各模式对应的公式如下所示

CC Mode	CR Mode	CV Mode
$I_{set} = \frac{E_{xt} - I}{10V} \times I_{f.S.}$	$R_{set} = \frac{10V}{E_{xt} - V_{f.S.(\min)}} \times R$	$V_{set} = \frac{E_{xt} - V}{10V} \times V_{f.S.}$ $I_{Limit} = \frac{E_{xt} - I}{10V} \times I_{f.S.}$

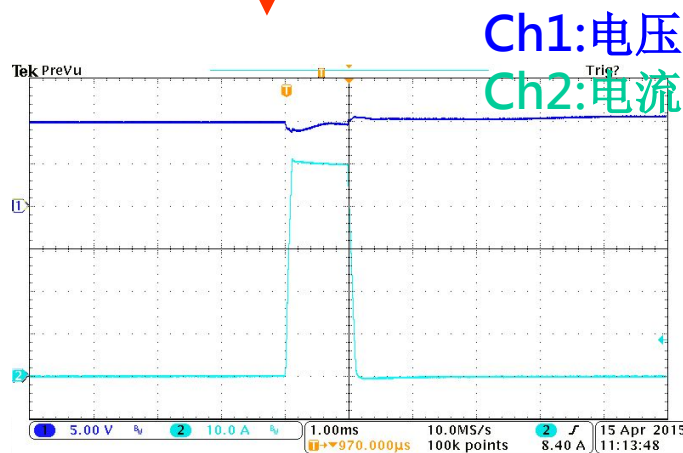
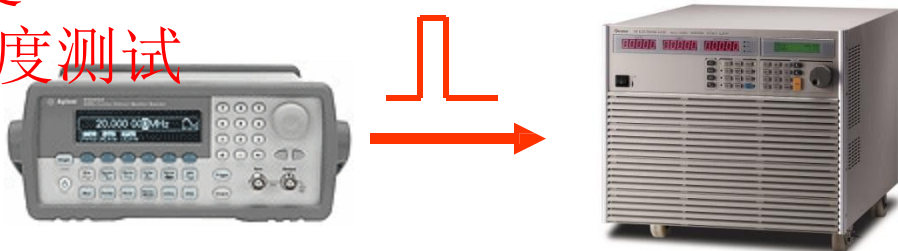
1. 设定MODE、I\_SET、SR↗、SR↘、V\_END、T\_OUT、V\_RANGE
2. 当Load ON时，定时器开始计时
3. 电压达V\_END或逾时T\_OUT，则停止拉载并停止计时
4. 可计算电池放电过程中所释放出的WH及AH
5. 应用于**电池放电测试**



## 于Constant Current Dynamic (CCD)内设定

1. Repeat次数设定为 1次
2. 应用于测试电池的DCR及保险丝、断路器的突波电流耐受

度测试



此外 中茂电子  
还提供您系统服务



## 8000 SMPS ATS

- 开放性架构软件平台
  - 可扩充性硬件架构
  - 测试程序编辑功能
  - 测试报告格式编辑功能
  - 测试报表生成程序
  - 统计分析报表编辑功能
  - 支援Shop Floor制程管制软件
- 测试命令编辑，说明改善测试速度
- 具有给任何电源供应器测试应用的测试项目编辑能力
- 根据用户需求可扩增硬件
- 经由系统默认测试项目，可提高测试生产率
- 因应业界新测试需求，可扩充硬件与增加新测试项目

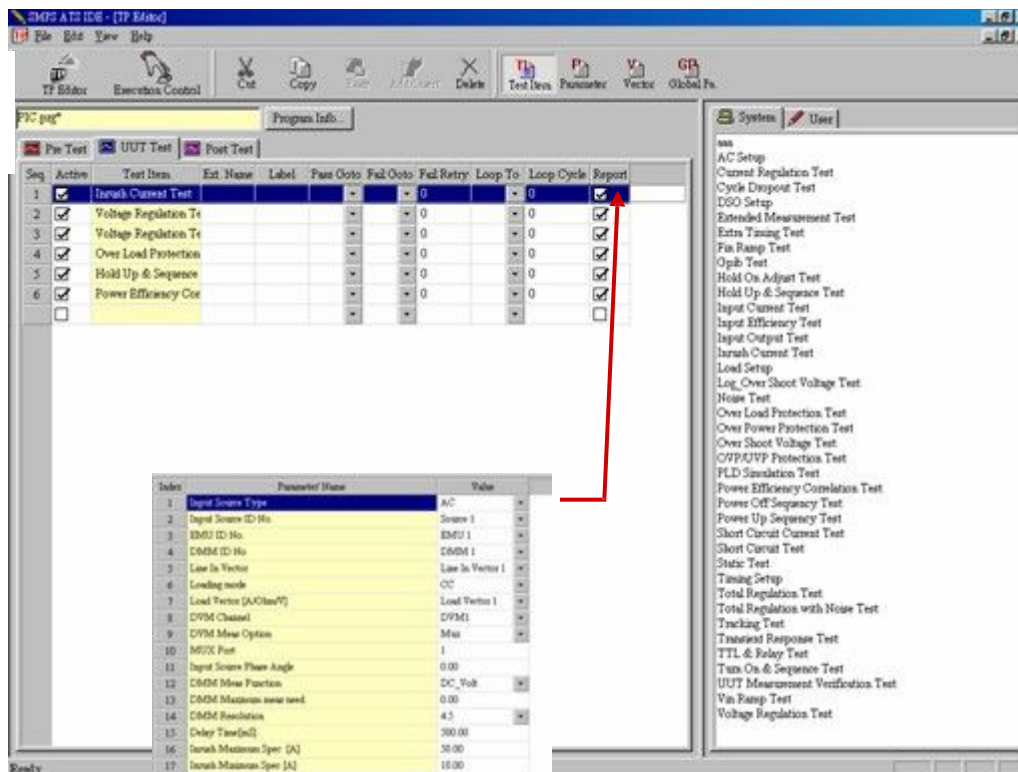
## Chroma 8000软件主要画面



## 测试程序

### Test Program Editor :

Provide environment for users to create new test programs by selecting test items listed in test item library.



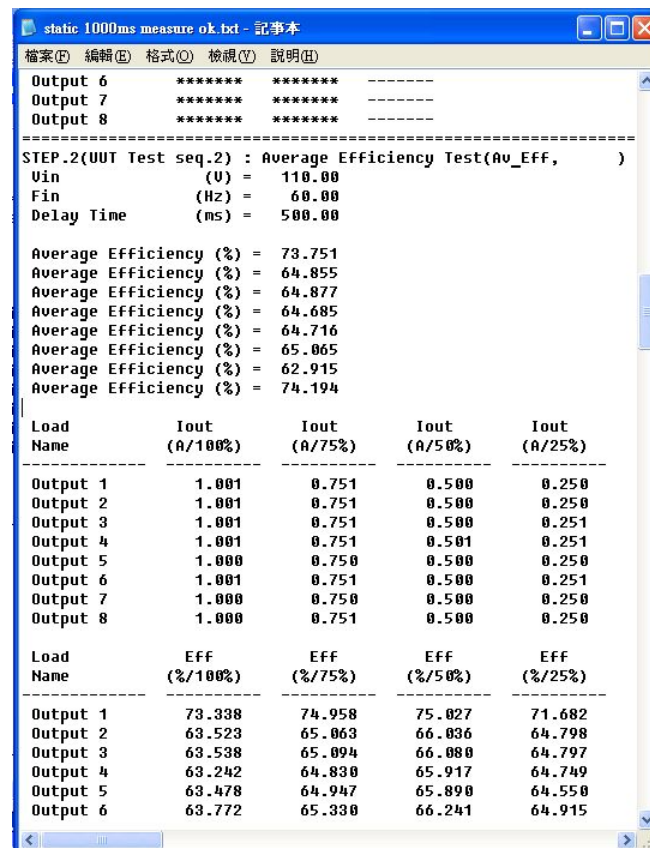
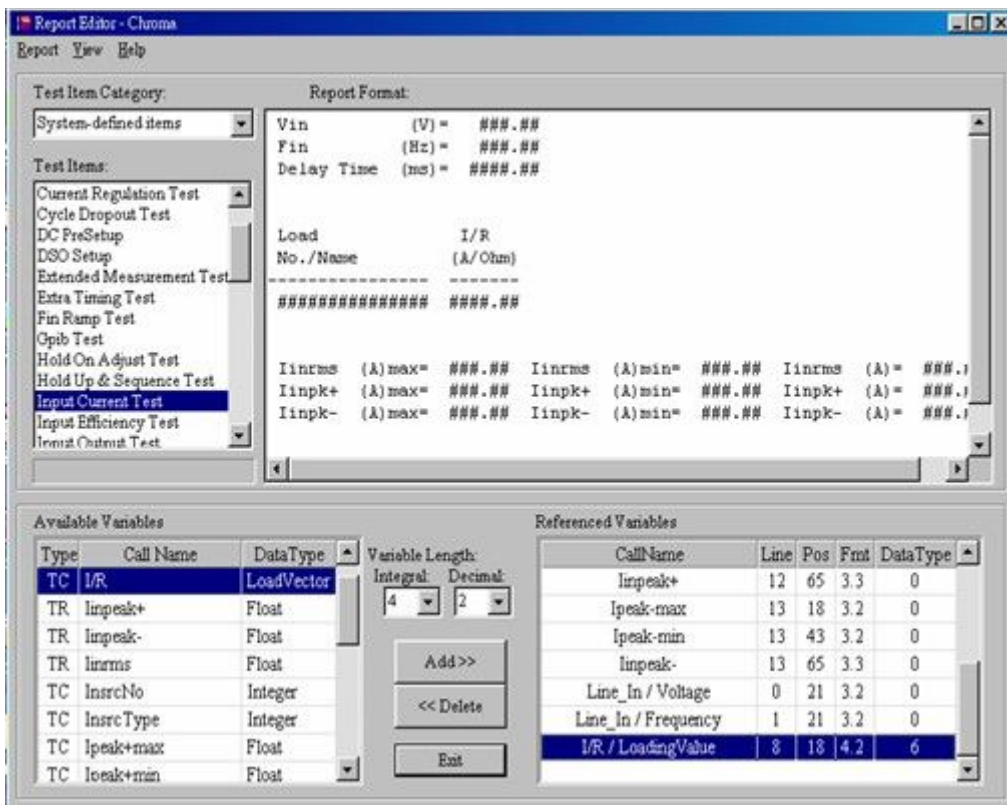
Users only need to fill the test conditions for pre-compiled test items. No advance engineering effort needed.



## 报表编辑器

## Report Editor /Generator :

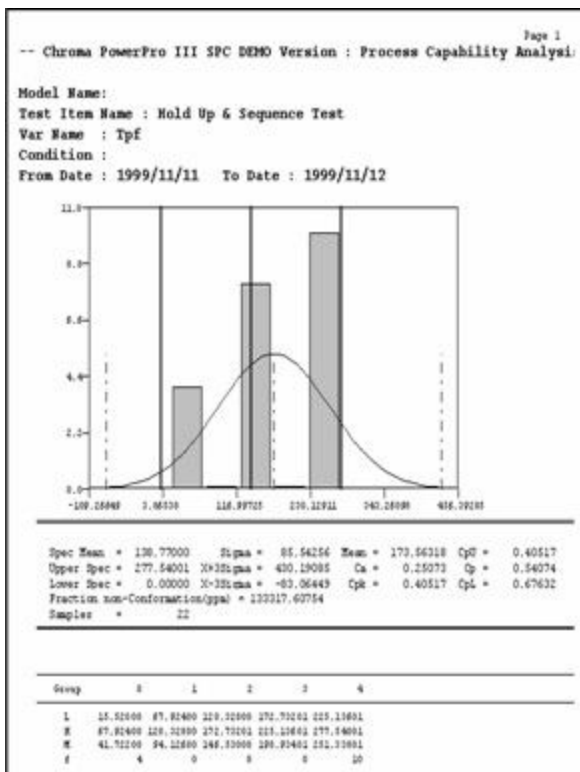
Create test report format by test items. And generate test report according to the test result of the test program.





## 统计分析

**Statistical Report** : Provide 8 different statistical control charts

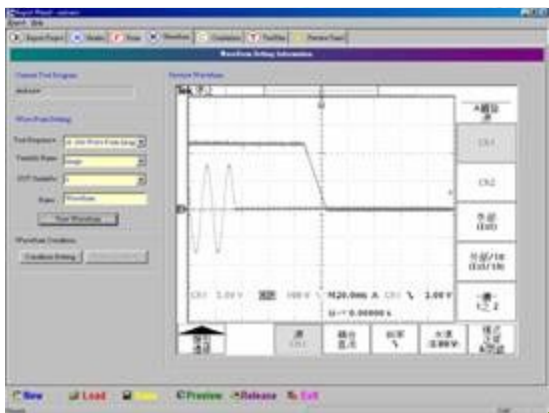


No.	Show Name	Load No	Seq	TestItem	Sel	No.	Serial No	Value	Result	Sel
1	Vinrms	0	1	Input Output Test	<input checked="" type="checkbox"/>	1	00131	98.581589	PASS	<input checked="" type="checkbox"/>
2	Vdc	0	1	Input Output Test	<input checked="" type="checkbox"/>	2	00132	45.549179	PASS	<input checked="" type="checkbox"/>
3	Pf	0	1	Input Output Test	<input checked="" type="checkbox"/>	3	00133	96.541519	PASS	<input checked="" type="checkbox"/>
4	Eff	0	1	Input Output Test	<input checked="" type="checkbox"/>	4	00134	95.519913	PASS	<input checked="" type="checkbox"/>
5	Pdc	0	1	Input Output Test	<input checked="" type="checkbox"/>	5	00135	94.501450	PASS	<input checked="" type="checkbox"/>
6	Pin	0	1	Input Output Test	<input checked="" type="checkbox"/>	6	00136	93.479843	PASS	<input checked="" type="checkbox"/>
7	linpeak+	0	1	Input Output Test	<input checked="" type="checkbox"/>	7	00137	41.469040	PASS	<input checked="" type="checkbox"/>
8	linrms	0	1	Input Output Test	<input checked="" type="checkbox"/>	8	00138	31.262398	PASS	<input checked="" type="checkbox"/>
9	Idc	5	1	Input Output Test	<input checked="" type="checkbox"/>	9	00139	30.240791	PASS	<input checked="" type="checkbox"/>
10	Idc	4	1	Input Output Test	<input checked="" type="checkbox"/>	10	00140	81.233131	PASS	<input checked="" type="checkbox"/>
11	Vdc	3	1	Input Output Test	<input checked="" type="checkbox"/>	11	00141	29.222328	PASS	<input checked="" type="checkbox"/>
12	linpeak-	0	1	Input Output Test	<input checked="" type="checkbox"/>	12	00142	80.211525	PASS	<input checked="" type="checkbox"/>
13	Vdc	2	1	Input Output Test	<input checked="" type="checkbox"/>	13	00143	28.200720	PASS	<input checked="" type="checkbox"/>
14	Idc	3	1	Input Output Test	<input checked="" type="checkbox"/>	14	00144	20.216469	PASS	<input checked="" type="checkbox"/>
15	Vdc	4	1	Input Output Test	<input checked="" type="checkbox"/>	15	00145	19.194860	PASS	<input checked="" type="checkbox"/>
16	Vdc	5	1	Input Output Test	<input checked="" type="checkbox"/>	16	00146	70.187202	PASS	<input checked="" type="checkbox"/>
17	Idc	0	1	Input Output Test	<input checked="" type="checkbox"/>	17	00147	89.165596	PASS	<input checked="" type="checkbox"/>
18	Idc	1	1	Input Output Test	<input checked="" type="checkbox"/>	18	00148	17.154791	PASS	<input checked="" type="checkbox"/>
19	Idc	2	1	Input Output Test	<input checked="" type="checkbox"/>	19	00149	88.143990	PASS	<input checked="" type="checkbox"/>
20	Vdc	1	1	Input Output Test	<input checked="" type="checkbox"/>	20	00150	16.133183	PASS	<input checked="" type="checkbox"/>
21	Vdc-2	3	3	Voltage Regulation Test	<input checked="" type="checkbox"/>	21	00151	15.111578	PASS	<input checked="" type="checkbox"/>
22	Vdc-2	4	3	Voltage Regulation Test	<input checked="" type="checkbox"/>	22	00152	66.103912	PASS	<input checked="" type="checkbox"/>
23	dV	5	3	Voltage Regulation Test	<input checked="" type="checkbox"/>	23	00153	65.082306	PASS	<input checked="" type="checkbox"/>
24	dV	4	3	Voltage Regulation Test	<input checked="" type="checkbox"/>	24	00154	13.071505	PASS	<input checked="" type="checkbox"/>
25	dV	3	3	Voltage Regulation Test	<input checked="" type="checkbox"/>	25	00155	64.063843	PASS	<input checked="" type="checkbox"/>
26	dV	2	3	Voltage Regulation Test	<input checked="" type="checkbox"/>	26	00156	12.049898	PASS	<input checked="" type="checkbox"/>
27	dV	1	3	Voltage Regulation Test	<input checked="" type="checkbox"/>	27	00157	63.042236	PASS	<input checked="" type="checkbox"/>

## 报表精灵

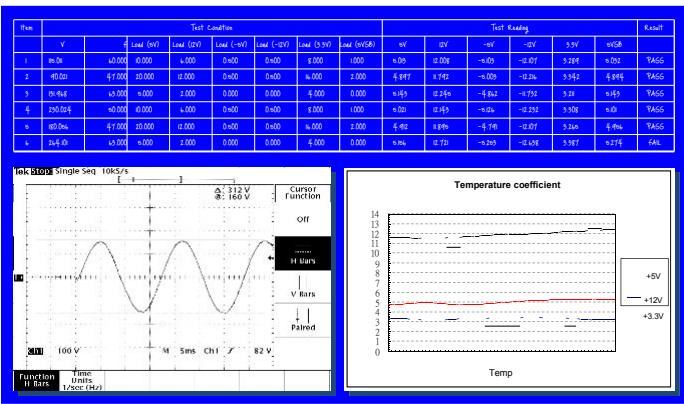
### Report Wizard :

Allow users to combine table, DSO waveform and correlation chart in one test report. Meanwhile, the output of Report Wizard is a standard WORD file.



No.	Type	Name	Order	Remark
1	Form	REGULATION	1	
2	Waveform	TURN ON	2	
3	Correlation	POUTEFF	3	
4	Waveform	TURNOFF	4	

- Report
- Project
- Header
- Form
- Waveform
- Correlation
- TestPlan
- Unknown Type



Save great deal of time in preparing test documentation

## 报表精灵





**The World for You & for Me.  
Thank You!**