

From the ACØC Bench

Got PS?

→ 13.7V - 45 Amps - \$20 ←



Got PS?

1. The \$20 Supply
2. Linear vs. Switching Types
3. Noise Filtering
4. Bench testing
5. PS testing tools



Built For The Computer Server Market



- Reliability focus → excellent build quality
- Reliability focus → OVP, OCP, thermal, soft-start
- Reliability focus → 24x7 CCS by design
- Relatively quiet (DPS-800)
- Easy to modify (no internal work required)
- Huge output for the price

The \$20 Power Supply



Mouse over image to zoom



HP DPS-800GB A 1000W Power Supply P/N: 379123-001 SP/N: 403781-001

★★★★★ 6 ratings

Item condition: **Used**

“Item is guaranteed to be in 100% working condition.”

Quantity:

0 available / 19 sold

Price: **US \$18.90**

Bucks Join **eBay Bucks** and earn % back on this item. [See conditions](#)

Shipping: **FREE** Economy Shipping | [See details](#)

Item location: Las Vegas, Nevada, United States

Ships to: United States and many other countries | [See details](#)

Delivery: Estimated within 5 business days

Payments: **PayPal**    

Credit Cards processed by PayPal

PayPal CREDIT

Get more time to pay. [Apply Now](#) | [See Terms](#)

[See details](#)

Returns: 30 days money back or item exchange, buyer pays return shipping | [See details](#)

Guarantee: **ebay** MONEY BACK GUARANTEE | [See details](#)

Get the item you ordered or get your money back.
Covers your purchase price and original shipping.



Seller information

epc-vegas-sp (1458 ★)

99.7% Positive feedback



[Follow this seller](#)

Visit store: [EPC-Vegas Small Parts](#)

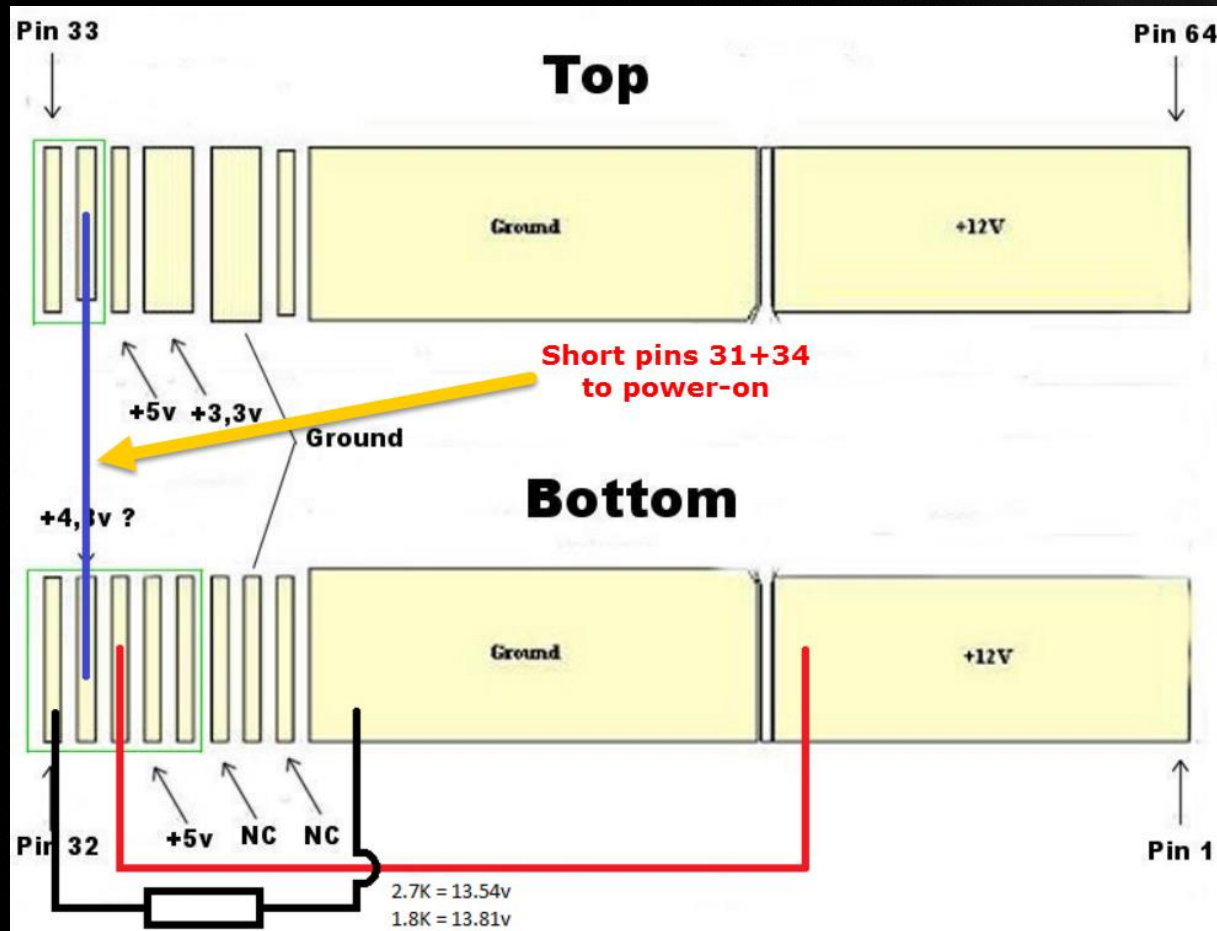
[See other items](#)

Derated to 13.7V @ 45+ Amps CCS

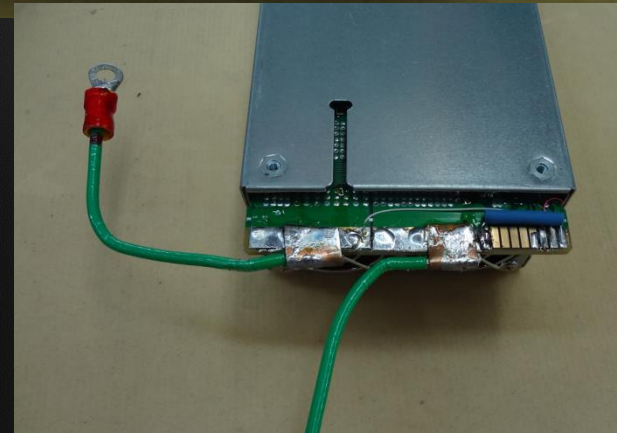
Model (型号/型號): DPS-800GB A REV(版本): 06M
Series: HSTNS-PD05 GPN: 380622-001
P/N: 379123-001 SPN: 403781-001
OPN: 399771-001
AUTORANGE INPUT(自动调整输入/自動調整輸入) 47-63Hz
INPUT(輸入/輸入): 100V ~ / 10A
OUTPUT(輸出/輸出): 800W(MAX.)
+12.15V === / 65.8A MAX. +5VSB === / 2A MAX.
+3.3VSB === / 8A MAX. -12V === / 0.3A MAX.
INPUT(輸入/輸入): 110 - 120V ~ / 10A
OUTPUT(輸出/輸出): 850W(MAX.)
+12.15V === / 69.9A MAX. +5VSB === / 2A MAX.
+3.3VSB === / 8A MAX. -12V === / 0.3A MAX.
INPUT(輸入/輸入): 200-240V ~ / 6.7A
OUTPUT(輸出/輸出): 1000W(MAX.)
+12.15V === / 82.3A MAX. +5VSB === / 2A MAX.
+3.3VSB === / 8A MAX. -12V === / 0.3A MAX.



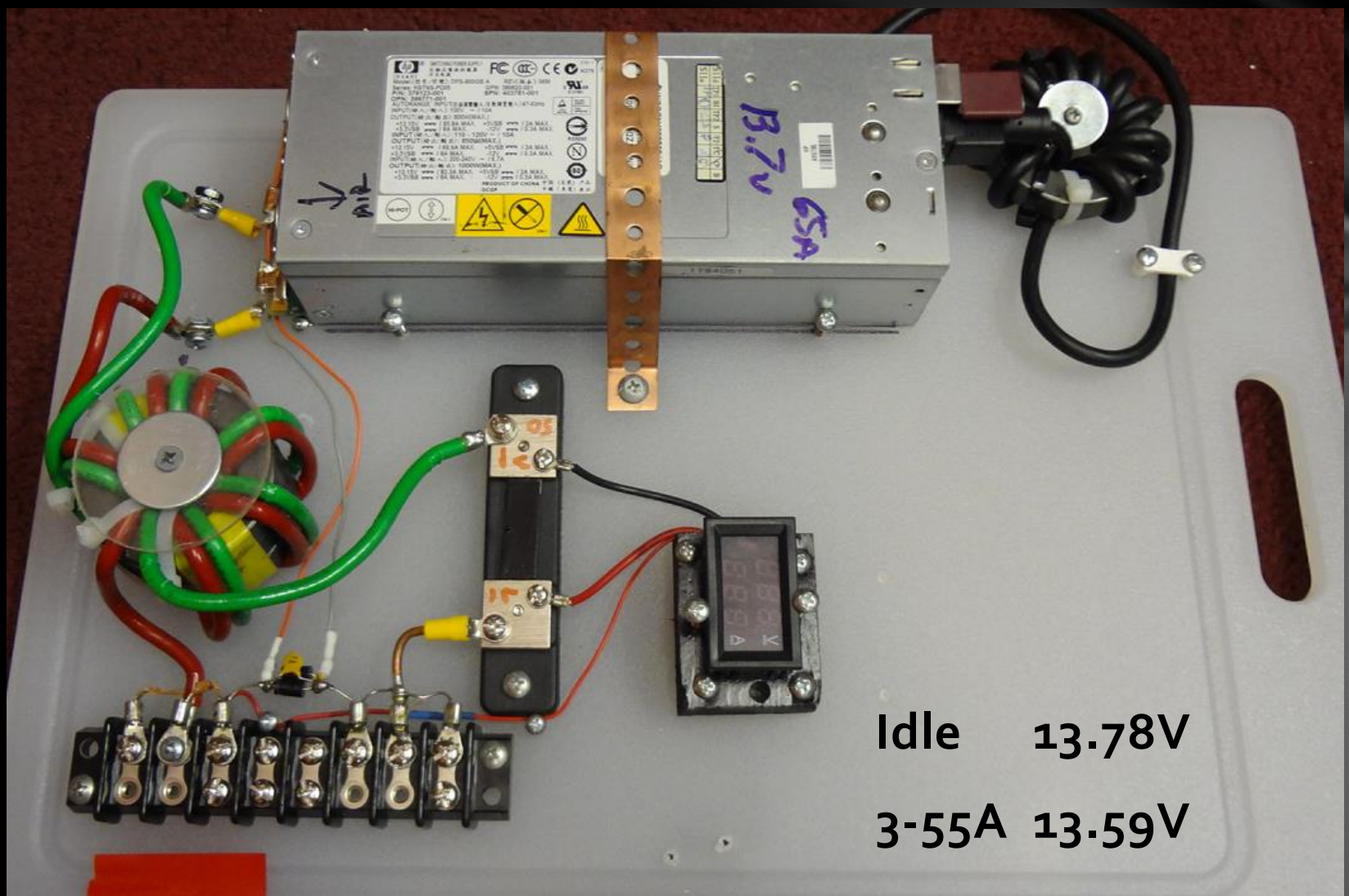
DPS-800 Modifications



DPS-800 Modifications



DPS-800 - As Built



Idle 13.78V

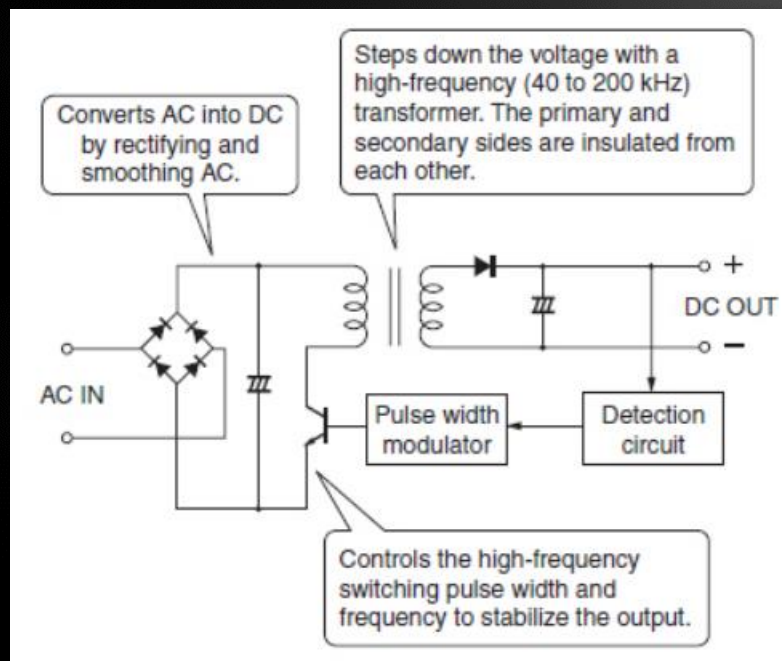
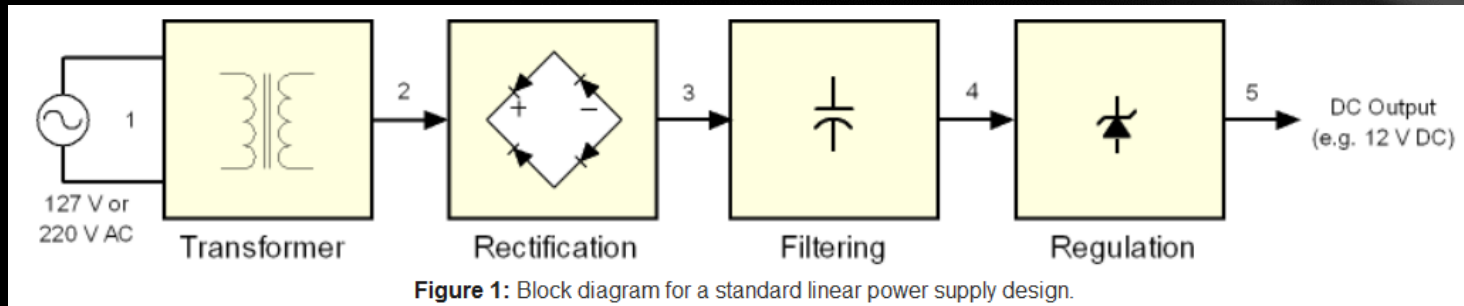
3-55A 13.59V

Got PS?

Linear vs. Switching Power Supplies



Linear Vs. Switching Power Supply

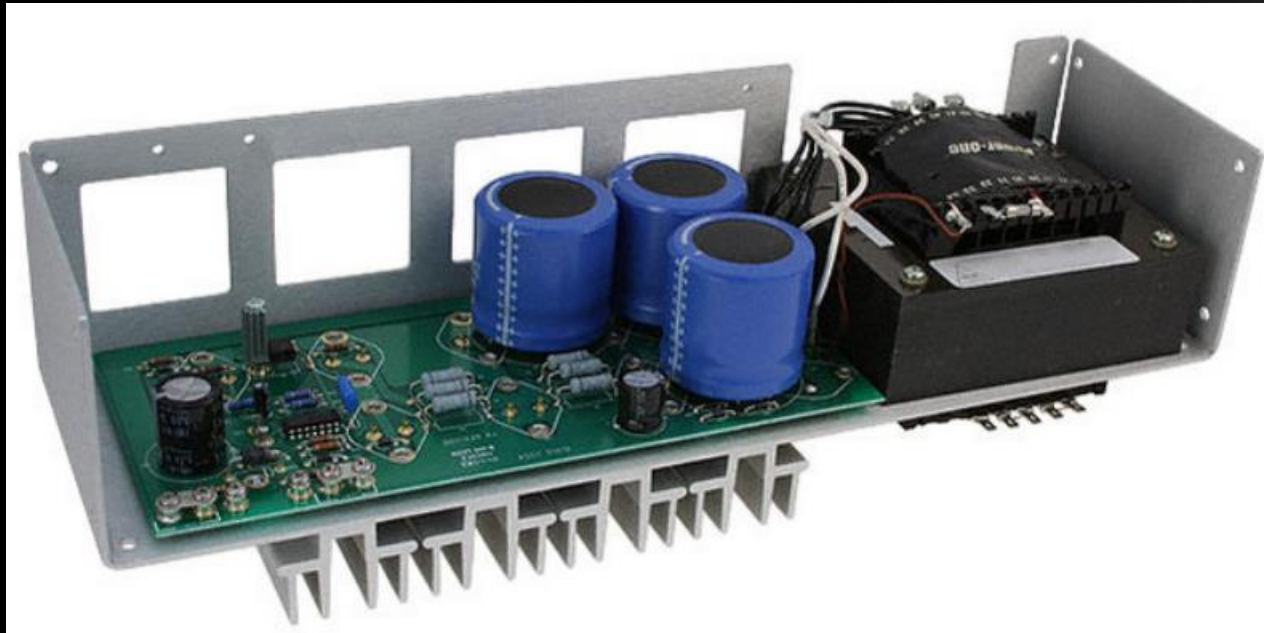


Linear Vs. Switching Power Supply

Aspect	Linear	SPS
Complexity	Low	High
Weight	High	Low
Efficiency	Low	High
Cost	Depends	Depends
RFI	Zero	Design dependent



Example of Industrial Linear Supply



Example of Industrial SPS

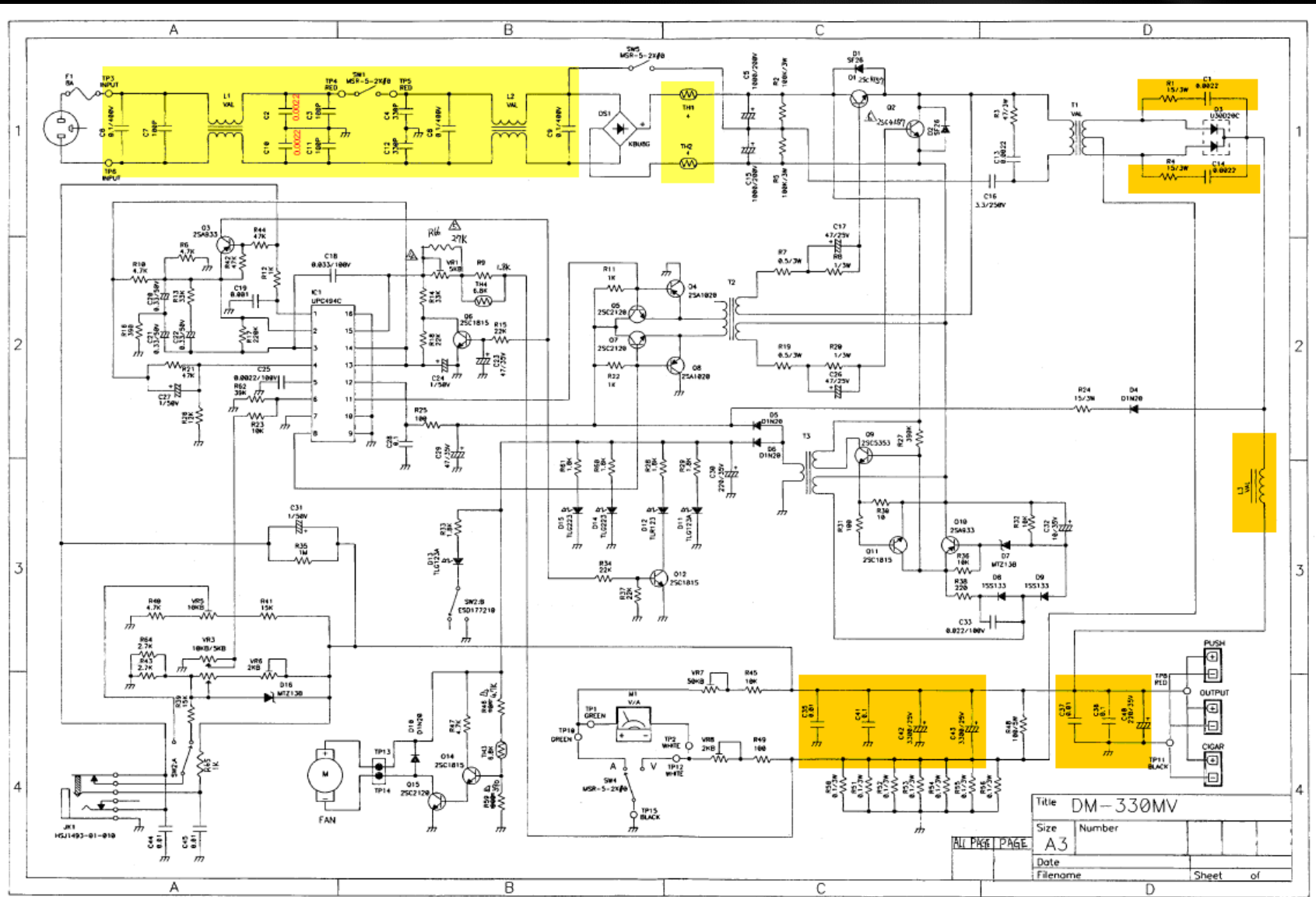


Switching Noise

Filtering



Alinco DM-330MV - Filtering



Title DM-330MV
 Size Number
 Date
 Filename Sheet of

ALL PAGE PAGE



DPS-800 Switching Noise - Filtering

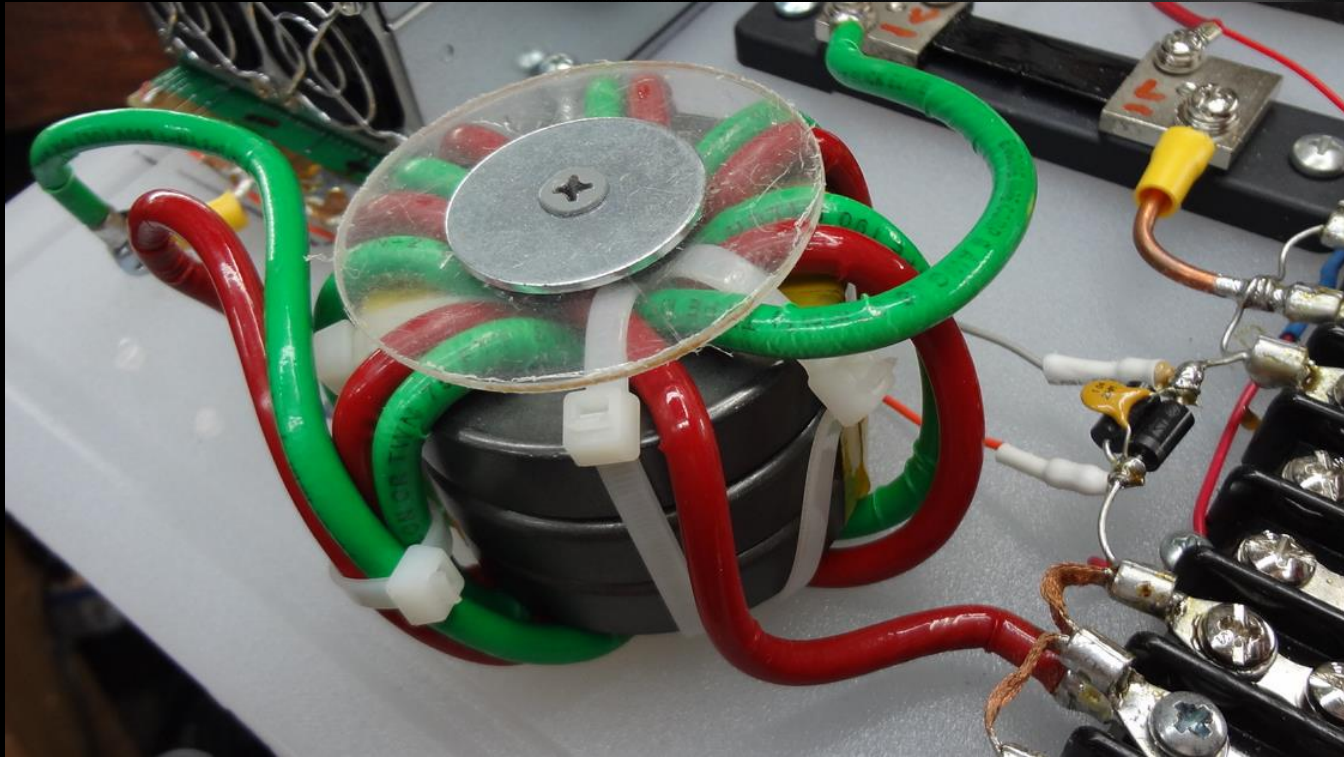


Input AC power line common mode choke

11 turns

1x 2.4" x 0.5" type 31 Fair-Rite 2631803802

DPS-800 Switching Noise - Filtering



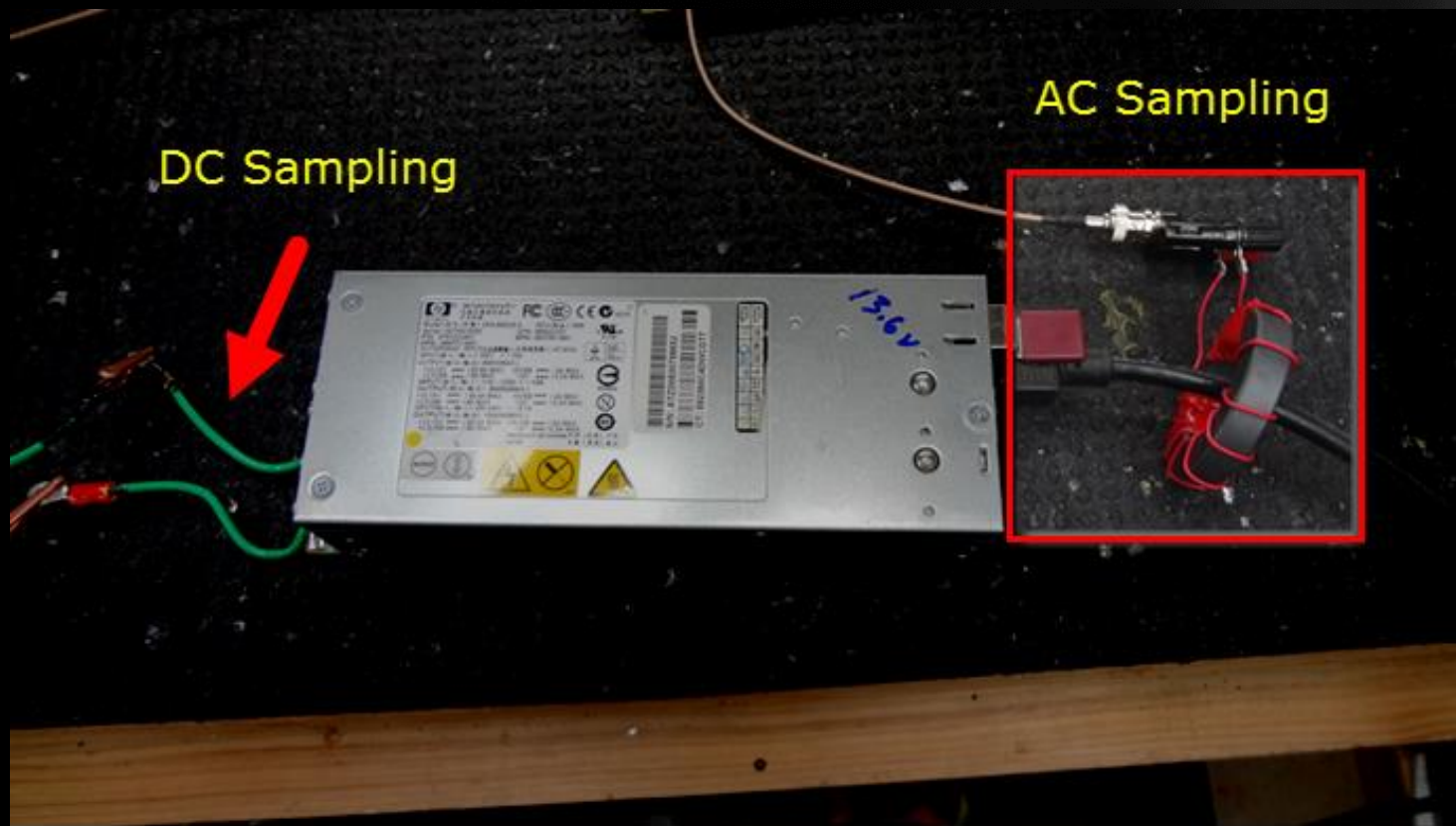
Output DC line common mode choke

7 turns bifilar #8 AWG

3x 2.4" x 0.5" type 31 Fair-Rite 2631803802



Switching Noise Testing – Sampler DPS-800



Switching Noise

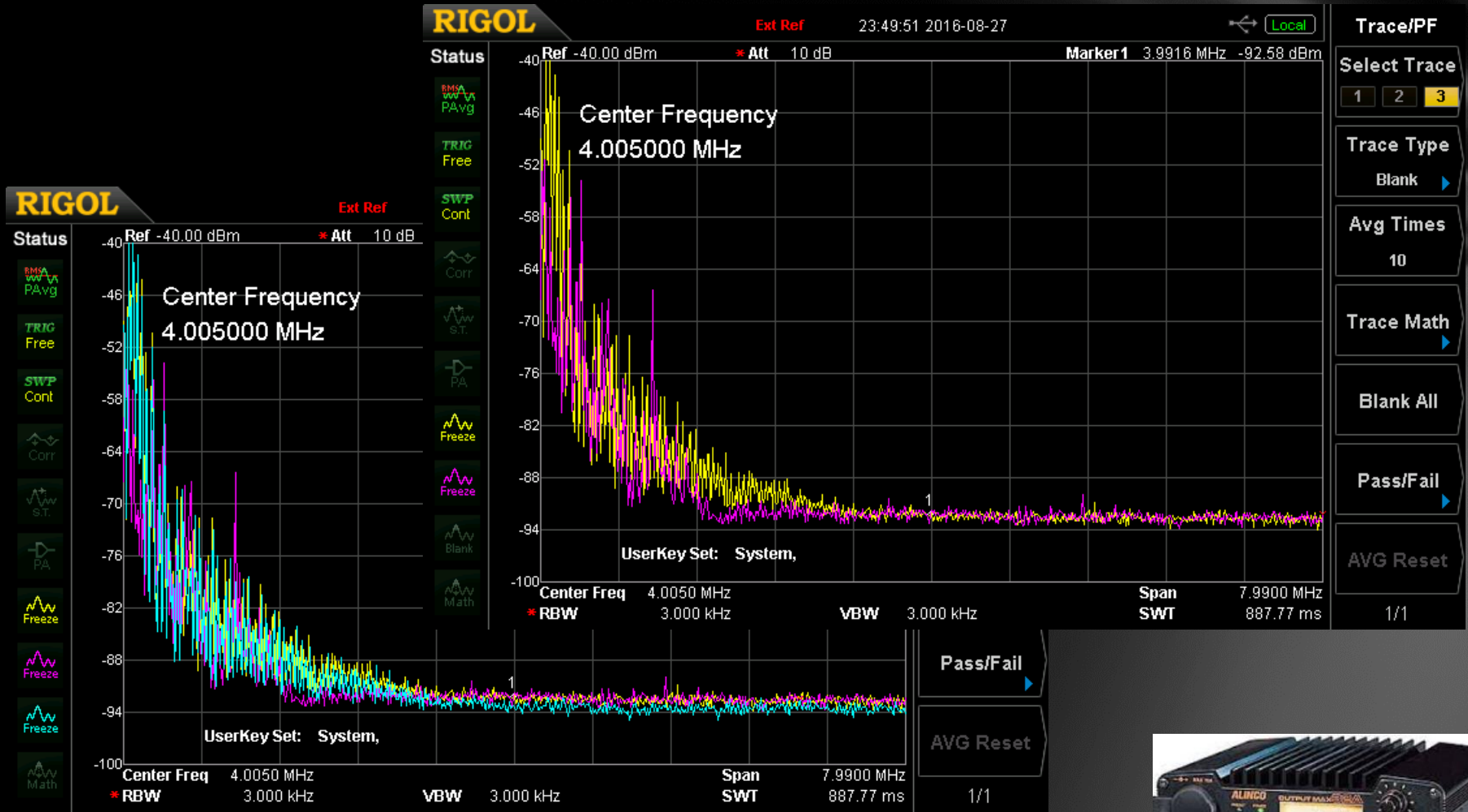
Icom PS-125 vs. DPS-800

DC Output Side Tests



Switching Noise – Verification

DC output - 2 AMP – Alinco DM-330 vs. Icom vs. DPS-800 (stock) – 10 kHz-8 mHz

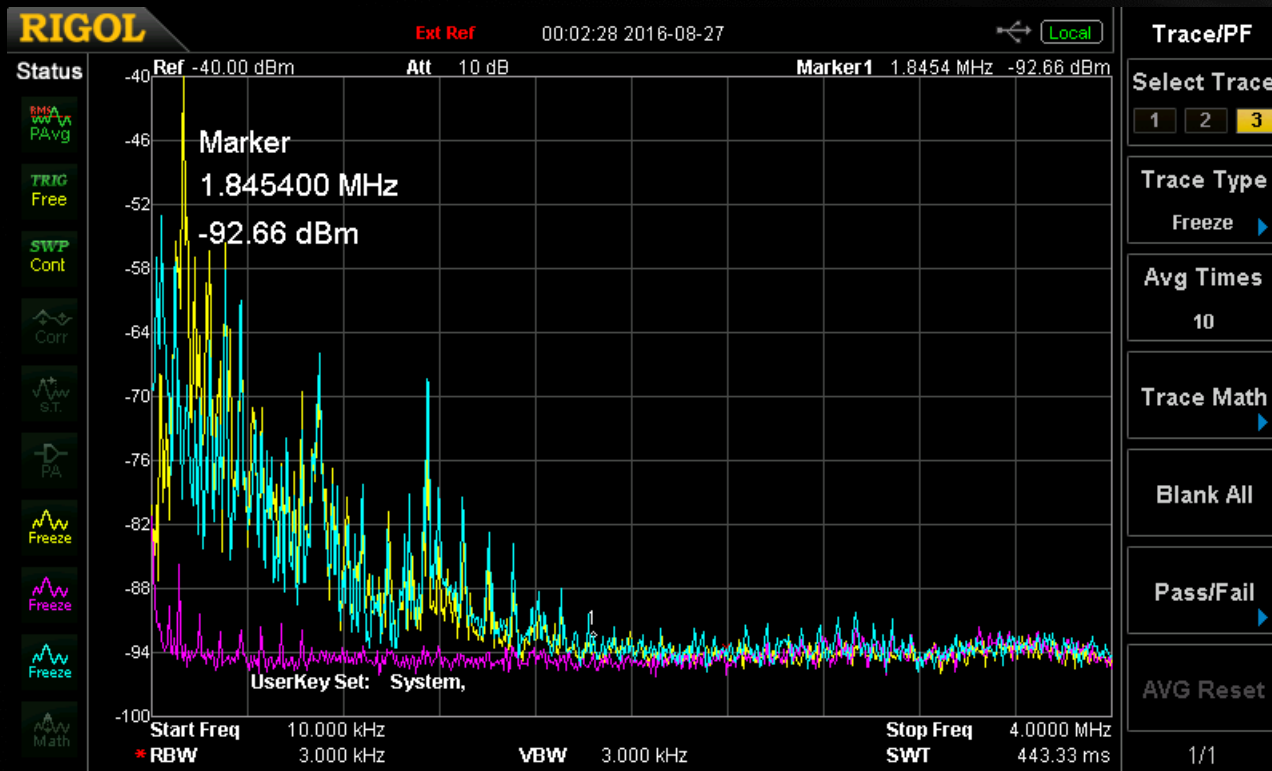


YEL-Alinco DM-330 BLU-Icom PS-125 PNK-DPS-800



Switching Noise – DC line sampled

2 AMP – Icom vs. DPS-800 (stock)



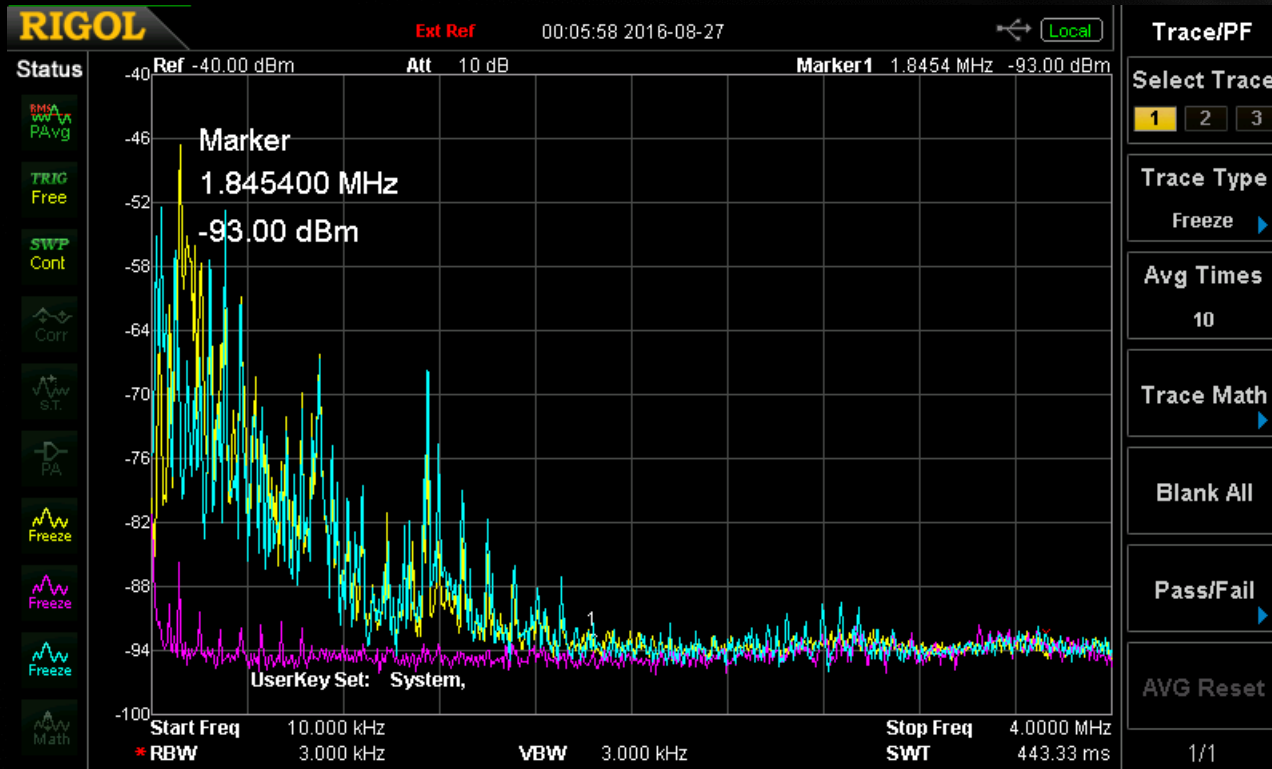
YEL – PS-125

BLU – DPS-800



Switching Noise – DC line sampled

23 AMP – Icom vs. DPS-800 (stock)



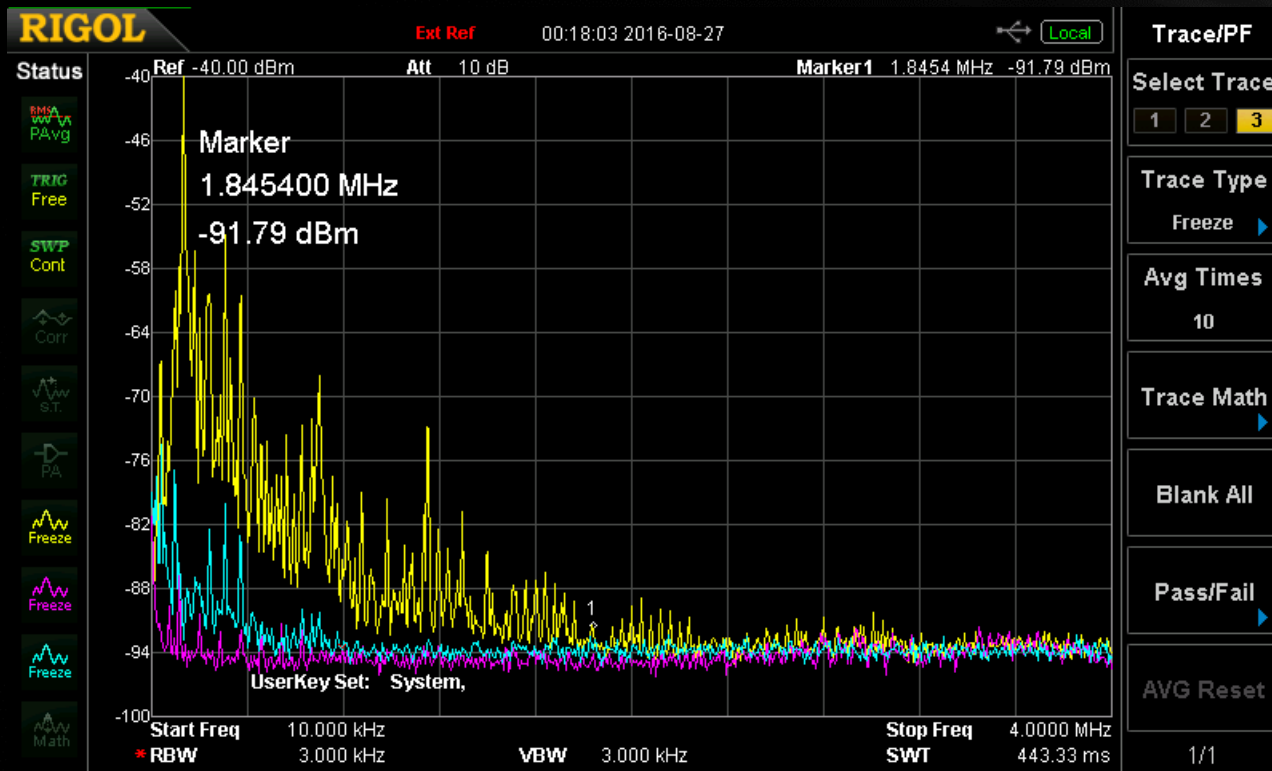
YEL – Icom PS-125

BLU – DPS-800



Switching Noise – DC line sampled

2 AMP – Icom vs. DPS-800 (filtered)



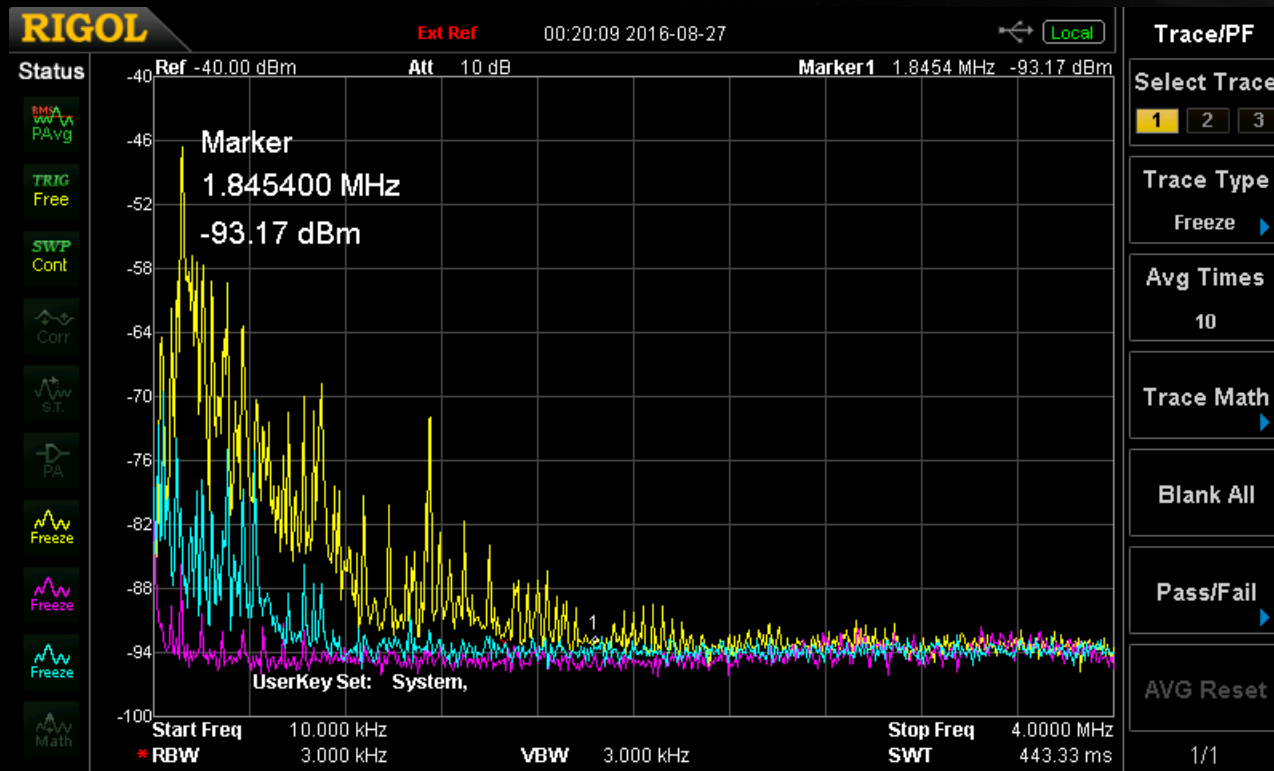
YEL – Icom PS-125

BLU – DPS-800



Switching Noise – DC line sampled

23 AMP – Icom vs. DPS-800 (filtered)



YEL – Icom PS-125

BLU – DPS-800



Switching Noise

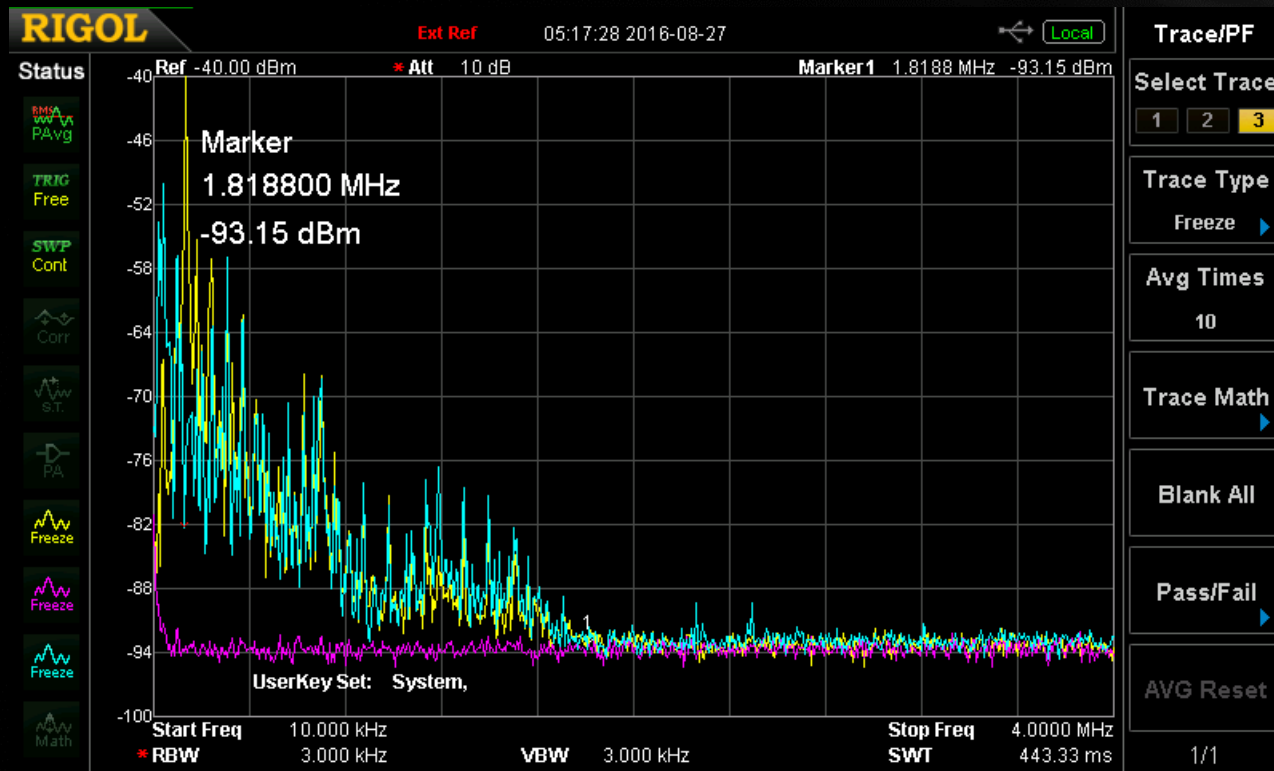
Icom PS-125 vs. DPS-800

AC Input Side Tests



Switching Noise – AC line sampled

2 AMP – Icom vs. DPS-800 (stock)



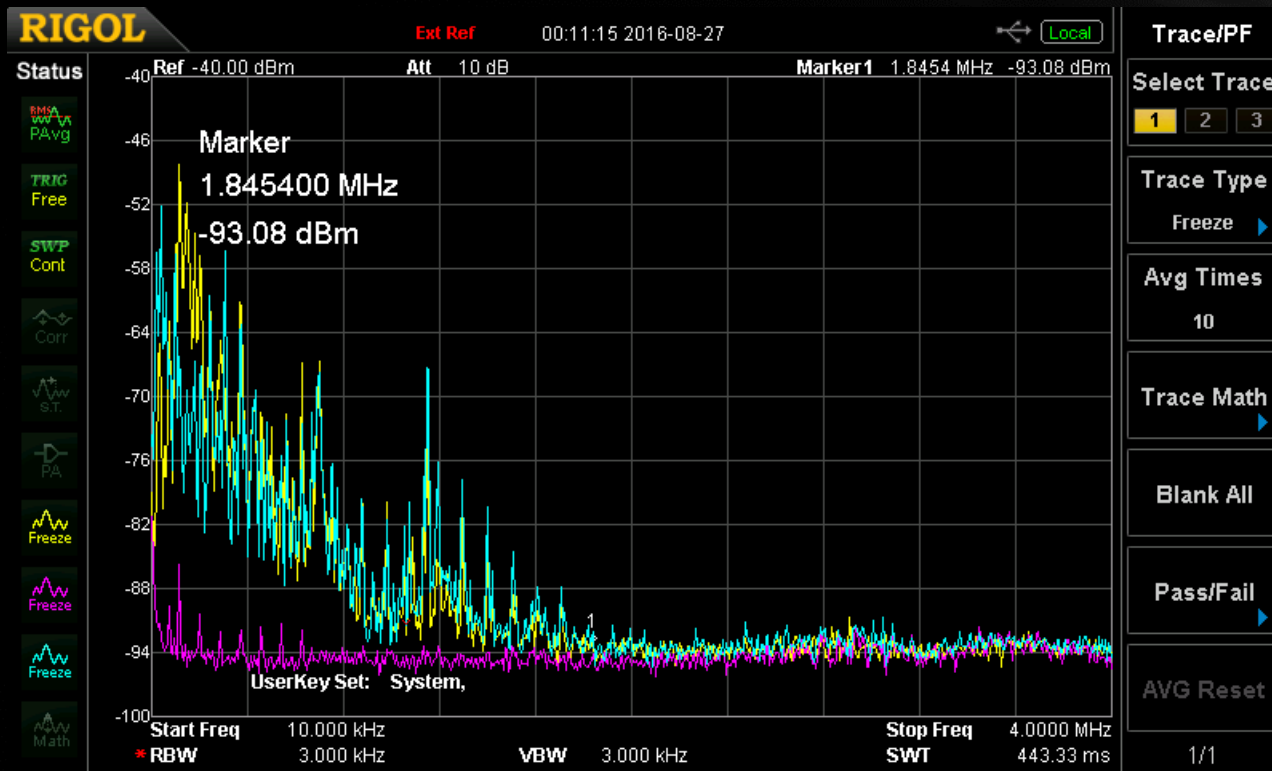
YEL – PS-125

BLU – DPS-800



Switching Noise – AC line sampled

23 AMP – Icom vs. DPS-800 (stock)



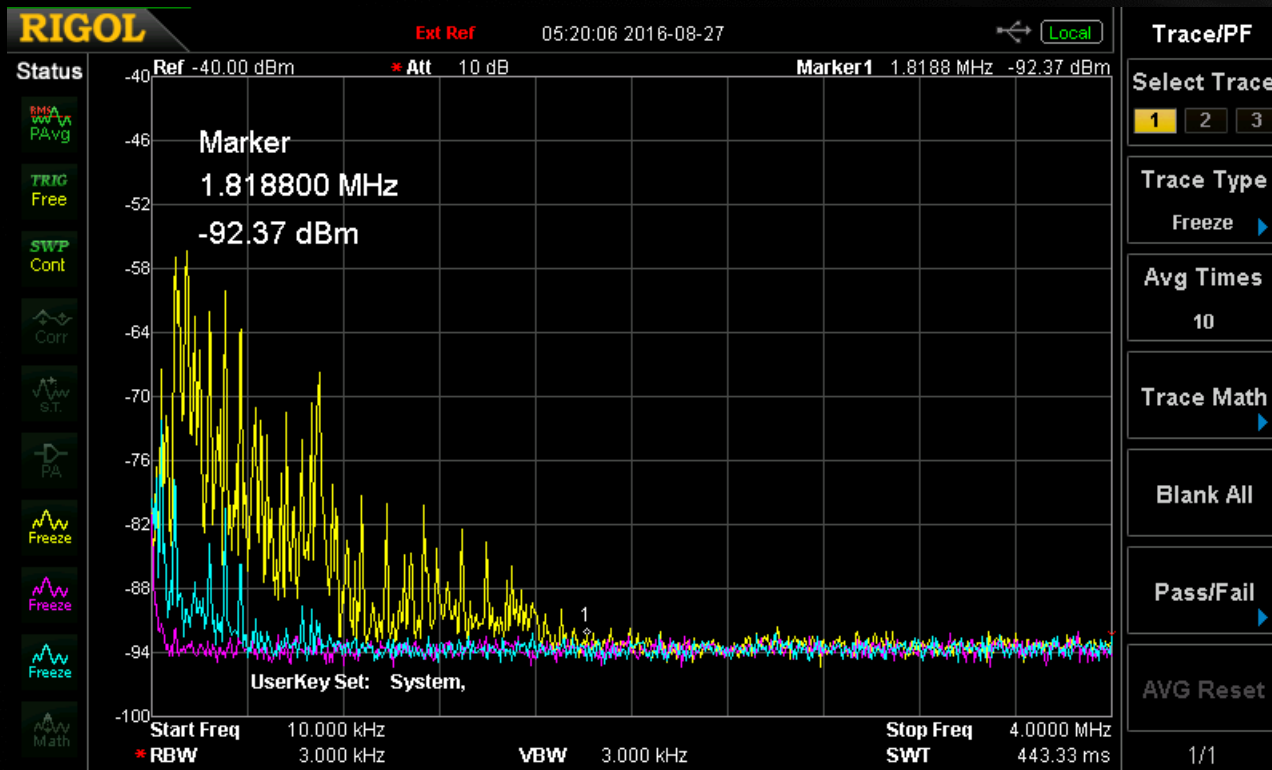
YEL – Icom PS-125

BLU – DPS-800



Switching Noise – AC line sampled

2 AMP – Icom vs. DPS-800 (filtered)



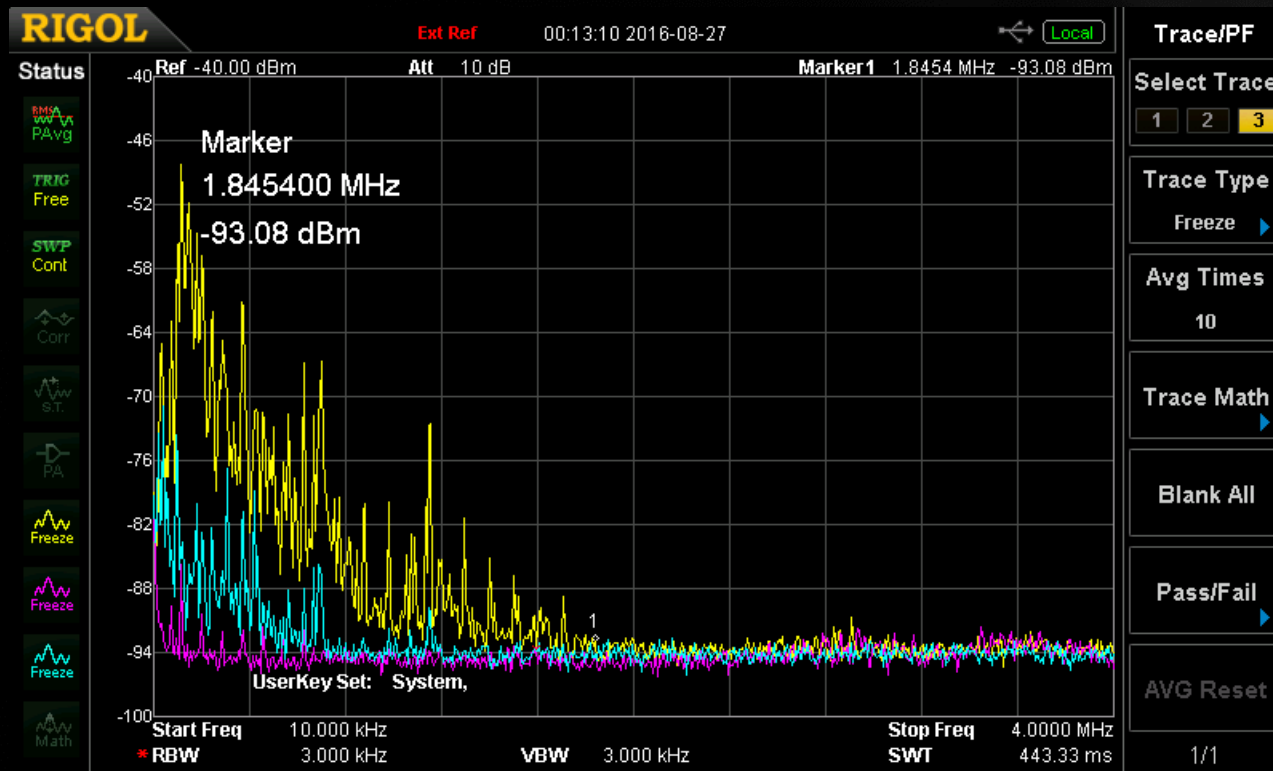
YEL – Icom PS-125

BLU – DPS-800



Switching Noise – AC line sampled

23 AMP – Icom vs. DPS-800 (filtered)



YEL – Icom PS-125

BLU – DPS-800



Switching Noise - Conclusions

Comparison	Result
Icom vs. DPS-800 (stock)	About the same
Icom vs DPS-800 (with filter)	DPS-800 better



PS Characterization Tools

Active Load

- MOSFET or bipolar transistor
- Continuously variable load
- Max load → limited by Pd
- Max voltage → limited by MOSFET/transistor

Passive Load

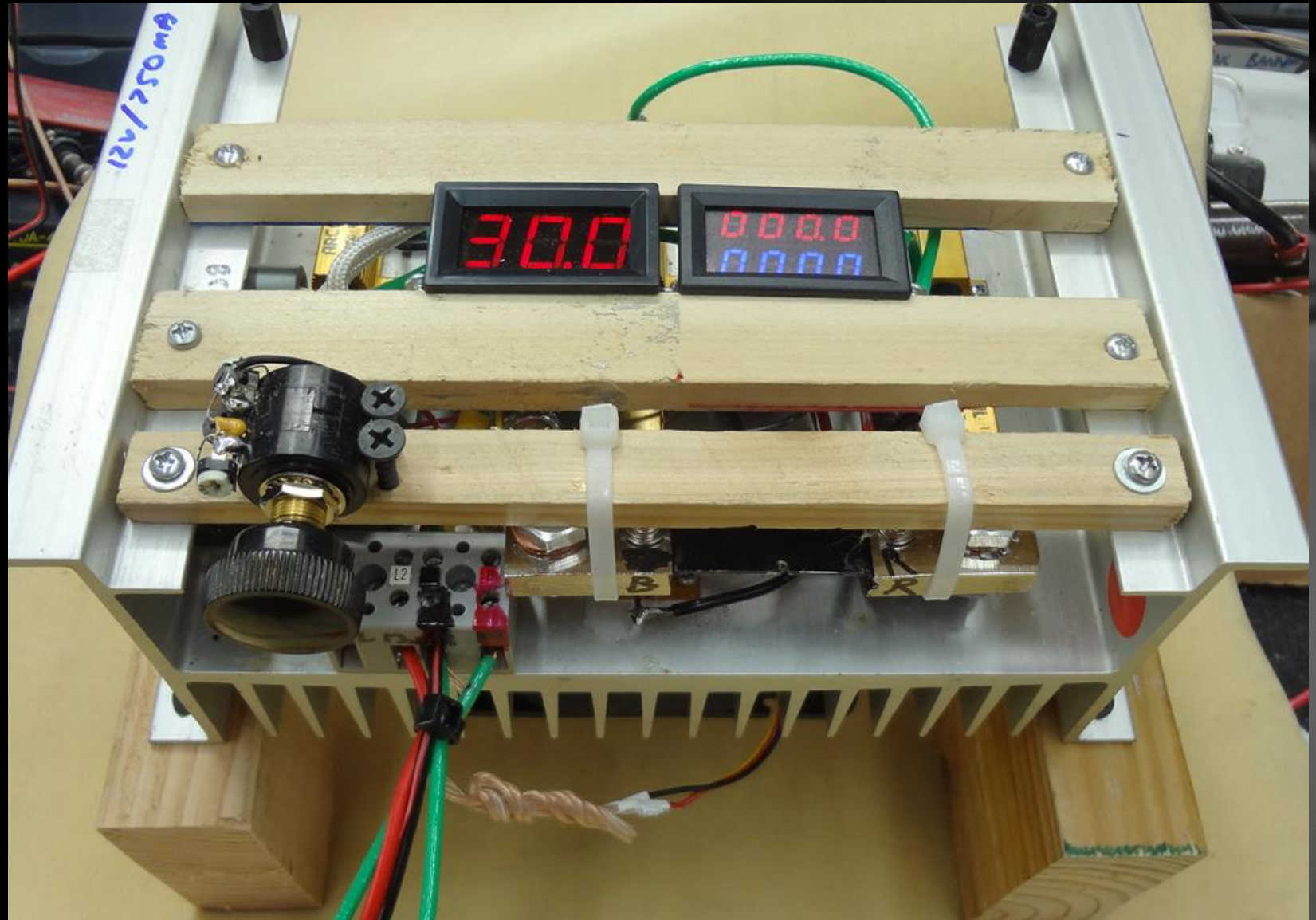
- Assortment of big resistors
- Load in steps - determined by Ohms law
- Max load → limited by resistor & cooling
- Max voltage → limited by resistor & arc concerns

DC Clamp Meter

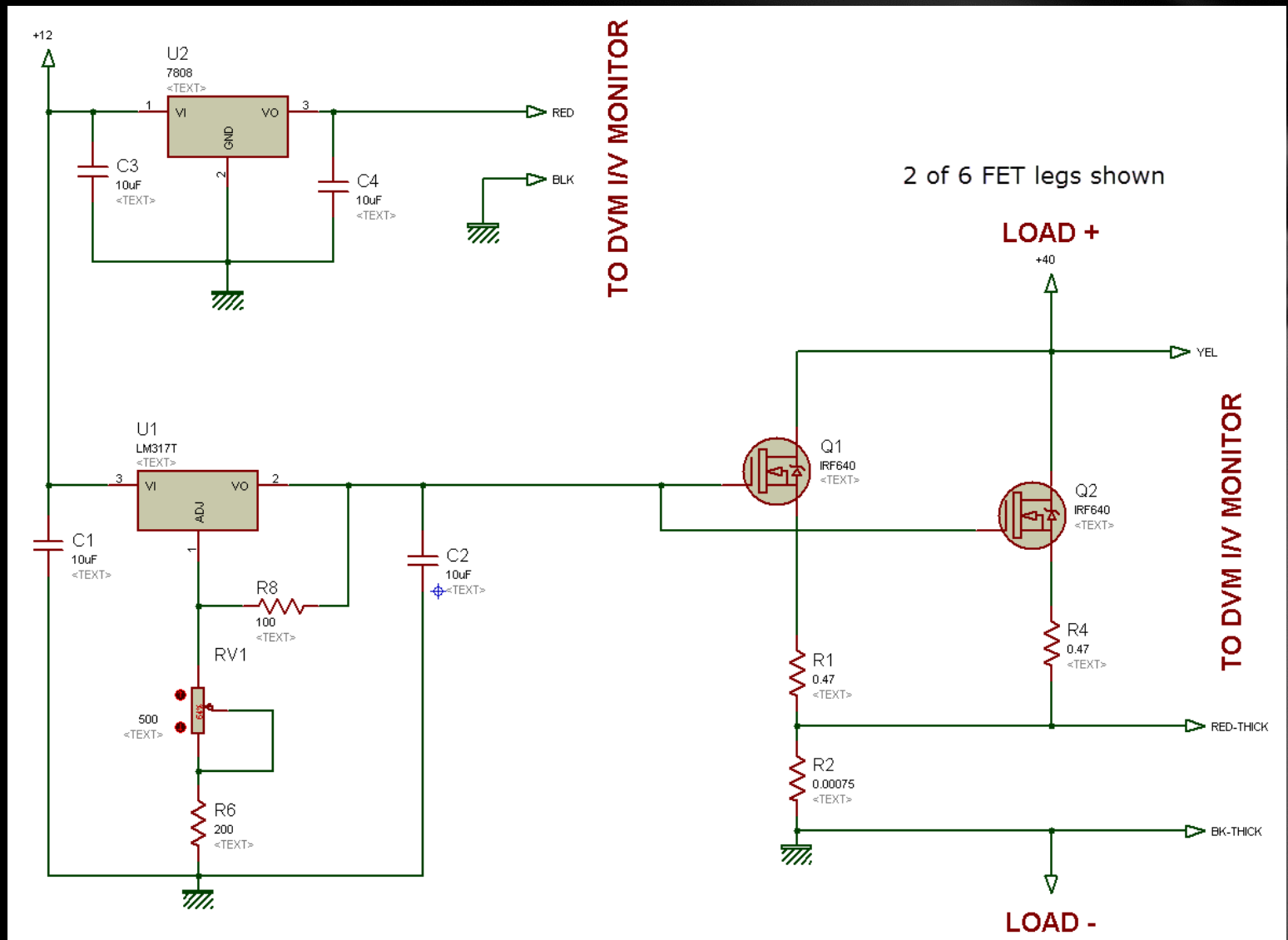
- Like common AC clamp-on meter, but for DC



Active Load



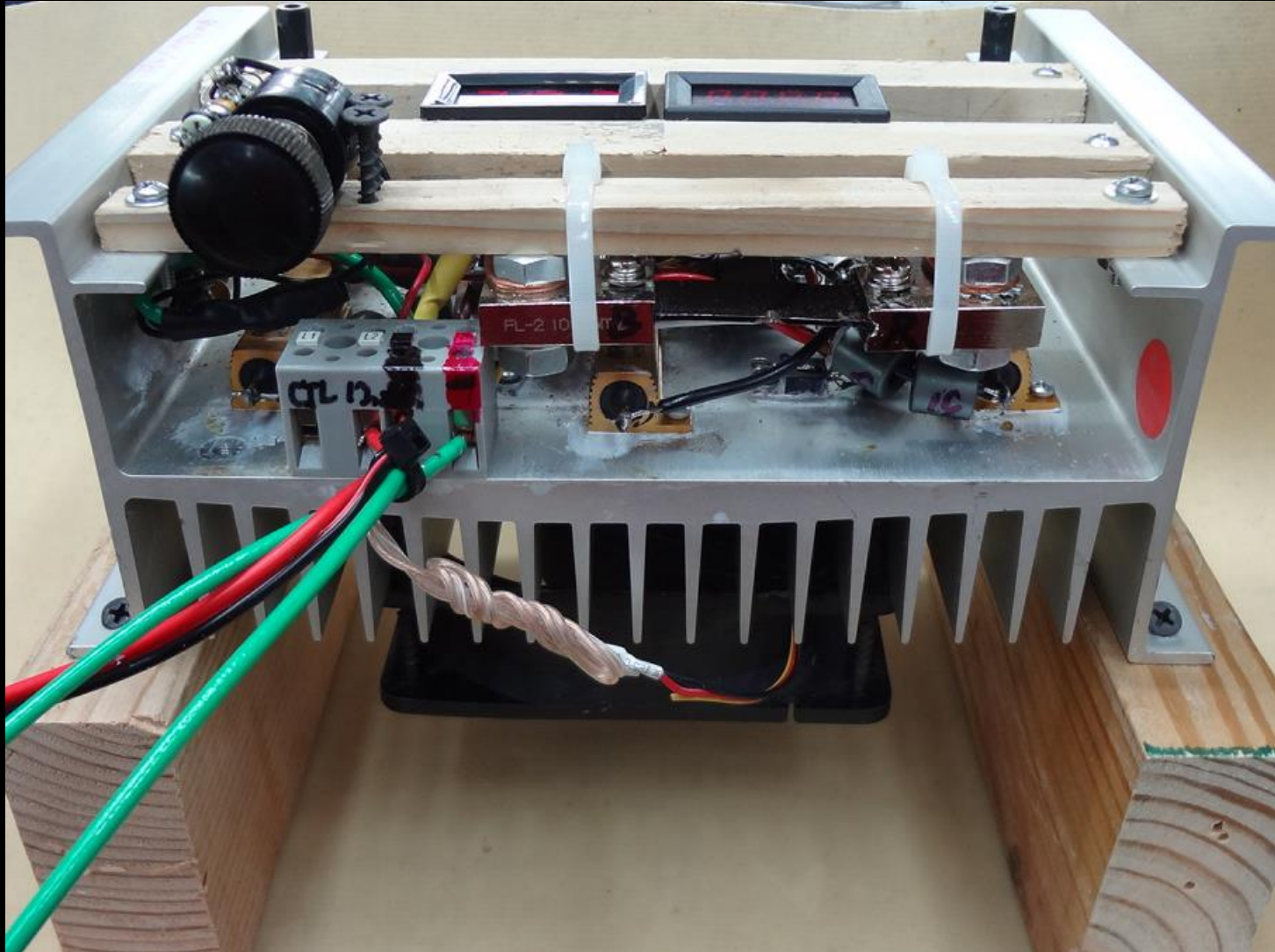
Active Load - Variable



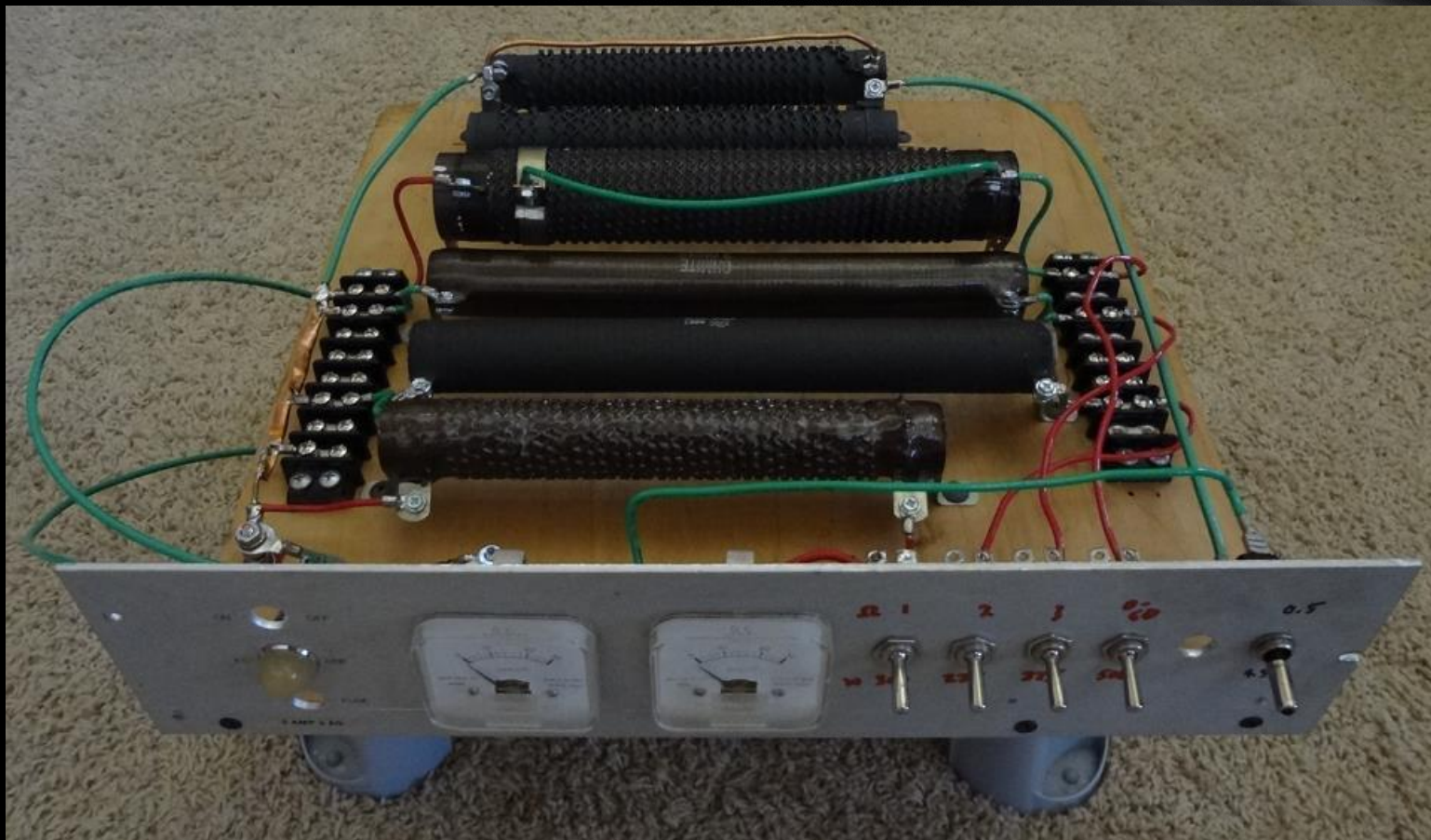
Active Load



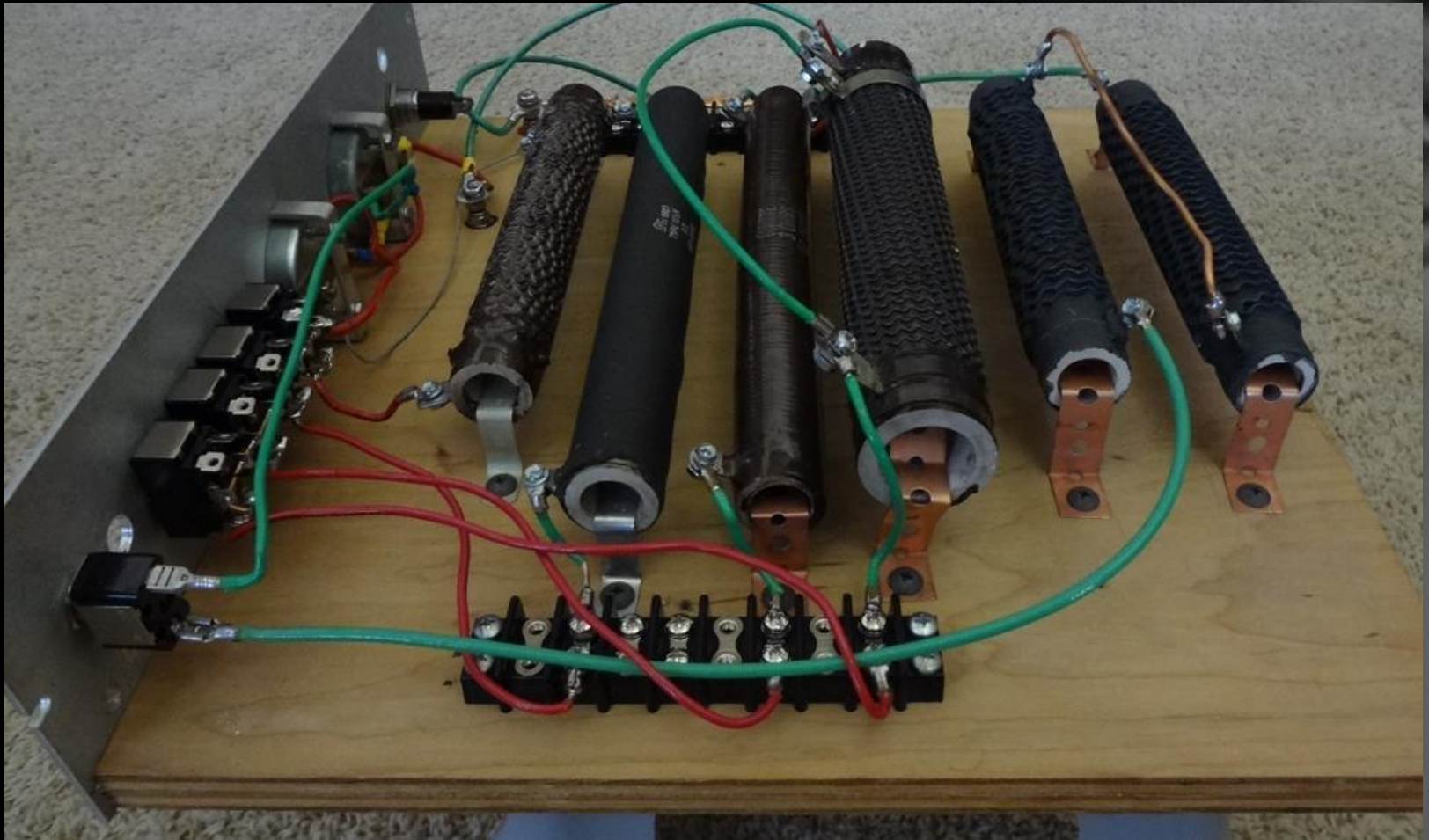
Active Load



Passive Load – Fixed / Stepped



Passive Load – Fixed / Stepped



DC Clamp Meter



Specification	Range	Accuracy	
		MS2115A	MS2115B
DC Voltage	60mV/600mV/6V/60V/600V	±(0.7% +3)	
	600mV/6.6V/66V/660V		±(0.5% +3)
	1000V	±(0.8% +2)	±(0.8% +2)
AC Voltage	60mV/600mV/6V/60V/600V	±(0.8% +3)	
	600mV/6.6V/66V/660V		±(0.8% +3)
	750V	±(1% +4)	±(1% +4)
DC Current	60A/600A/1000A	±(2.5% +6)	
	66A/660A/1000A		±3.0% +3)
AC Current	60A/600A/1000A	±(2.5% +6)	
	66A/660A/1000A		±(2.5% +3)
Resistance	600Ω/6kΩ/60kΩ/600kΩ/6MΩ	±(0.8% +3)	
	60MΩ	±(1.2% +3)	
	660Ω/6.6kΩ/66kΩ/660kΩ/6.6MΩ		±(1.0% +3)
	66MΩ		±(1.5% +3)
Capacitance	10nF/100nF/1000nF/10μF/100μF /1000μF/10mF/100mF	±(4.0% +5)	
	6.6nF/66nF/660nF/6.6μF /66μF/660μF/6.6mF/66mF		±(4.0% +3)
Frequency (From Clamp)	0~ 10KHz	±(1.5% +5)	±(1.5% +5)
LogicFrequency	0~60MHz	±(0.5% +3)	
	0~66MHz		±(0.5% +3)
Duty Cycle	10%~ 90%	±3.0%	±3.0%

Sites

<http://paofri.home.xs4all.nl/Diversen/DPS-800GB%20A%20Server%20sypply/DPS-800GB%20A%20PSU%20eng.htm>

<http://electronics.stackexchange.com/questions/186584/converting-a-dps800-server-psu-into-a-standalone-12v-psu>

<http://www.rcgroups.com/forums/showthread.php?t=1301679>

