

RFI Test Report – HP 12V 750W Server Power Supply

Manufacturer: HP branded, actually Delta Electronics

Model: DPS-750AB-3A

Model number: **DPS-750AB-3A** Part number: **643955-101**

Description: Pluggable server power supply, 12V 62.5A, wide-range input

Purchased from: Ebay Price: under \$20 typical (used, pulled from equipment)

Test equipment: Isolation transformer, 50 uH LISN, HP 8560A with 20 dB preamp, Tek TDS320A. Note: Spectrum spikes around 100 MHz are FM band leakage.

Tested by: Gary Johnson, NA6O Date: June 4, 2020

Summary

Recommend for amateur radio stations: **YES**

FCC Part 15(B) conducted emissions: Compliant

FCC Part 15 labeling: FCC marking on device

Observations:

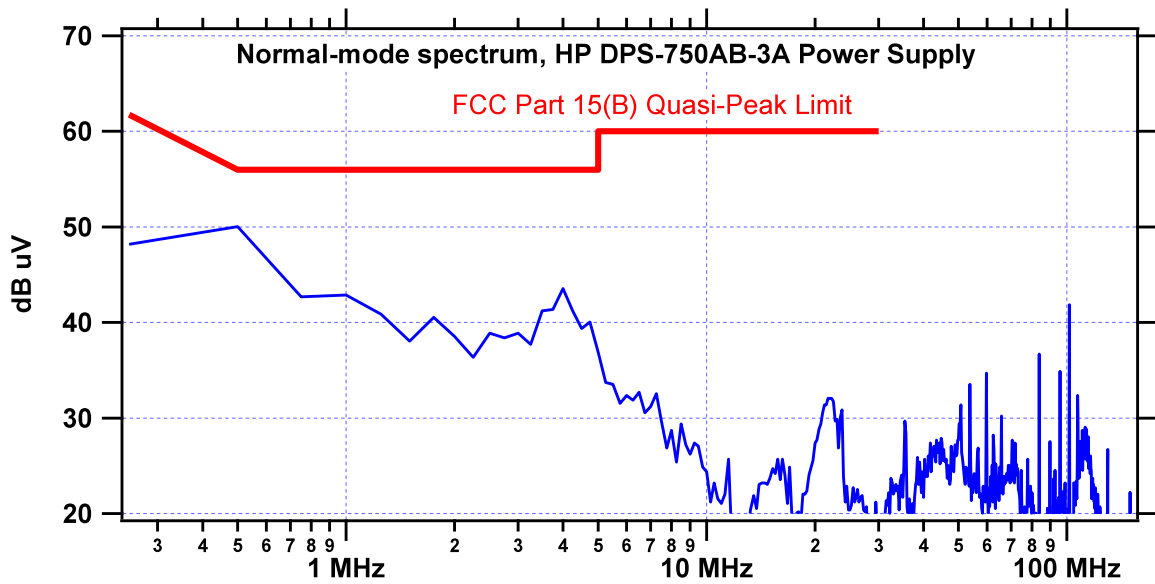
This is a plug-in power supply module intended for servers and is of very high quality but low cost on the used market. Numerous similar models are available but of course it's impossible to vouch for the performance of other versions. Output negative terminal is connected directly to case ground.

All testing performed with a 4 ohm (3A) load. DC output voltage was 12.30 V. First impression is that this is an extremely quiet switching supply. Switching frequency is 110 kHz. If any interference is ever noted from this supply, it will be at harmonics of 110 kHz. See the output waveform plots. Turn-on into the 3A load is a smooth exponential rise (10-90% risetime 20 ms) with no overshoot. The small internal fan is very quiet.

Normal-mode AC line noise is well-suppressed. The NM spectrum shows that all energy is well below the FCC Part 15 (B) limit. There is little VHF energy, my measurements being limited by local FM station leakage. Common-mode noise current is low and, again, no VHF energy. Noise is undetectable with my portable HF radio and direction finding antenna beyond a few feet away, an excellent result. The rise in CM current above 20 MHz was not audible but could be completely suppressed with a common-mode choke applied to the AC line cord. Overall, this economical supply is a good choice for amateur radio use. Note: For most 100W transceivers, intermodulation distortion improves when the supply voltage is increased somewhat above 12V. There are instructions on the web regarding changing an internal feedback resistor to set the output at roughly 13.5-14V.

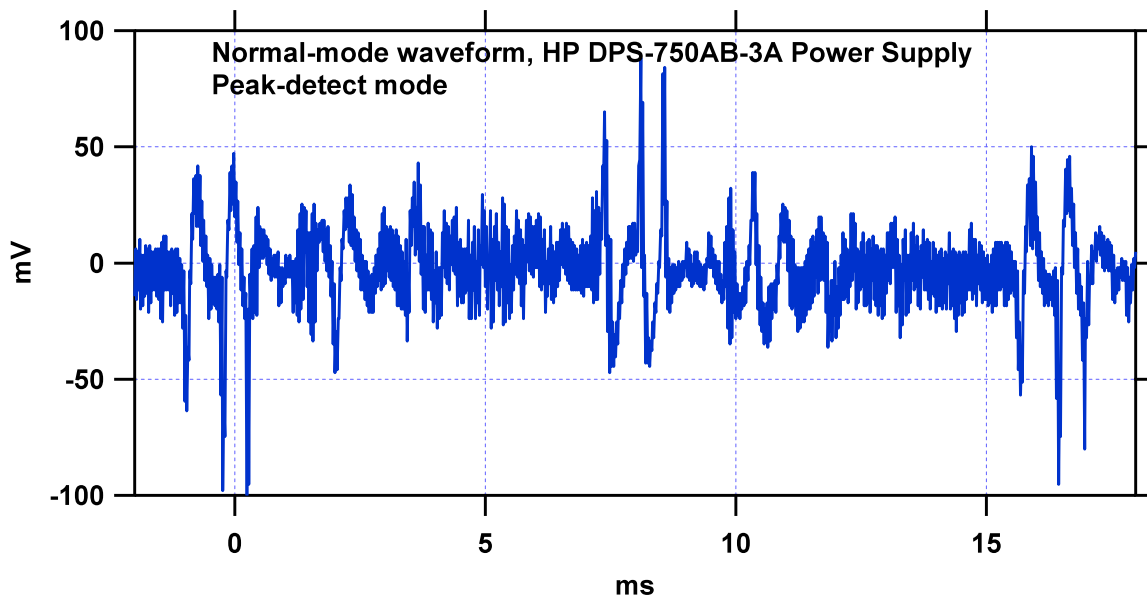


Normal-Mode Spectrum



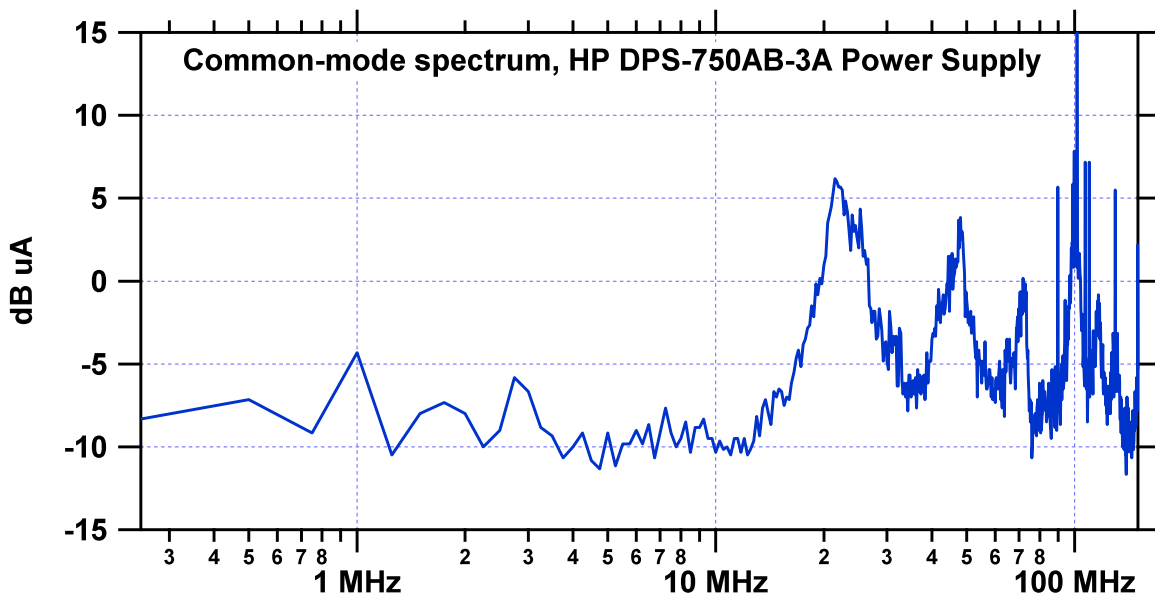
Normal-Mode Waveform

Glitches are well-filtered and energy is all below 100 kHz.



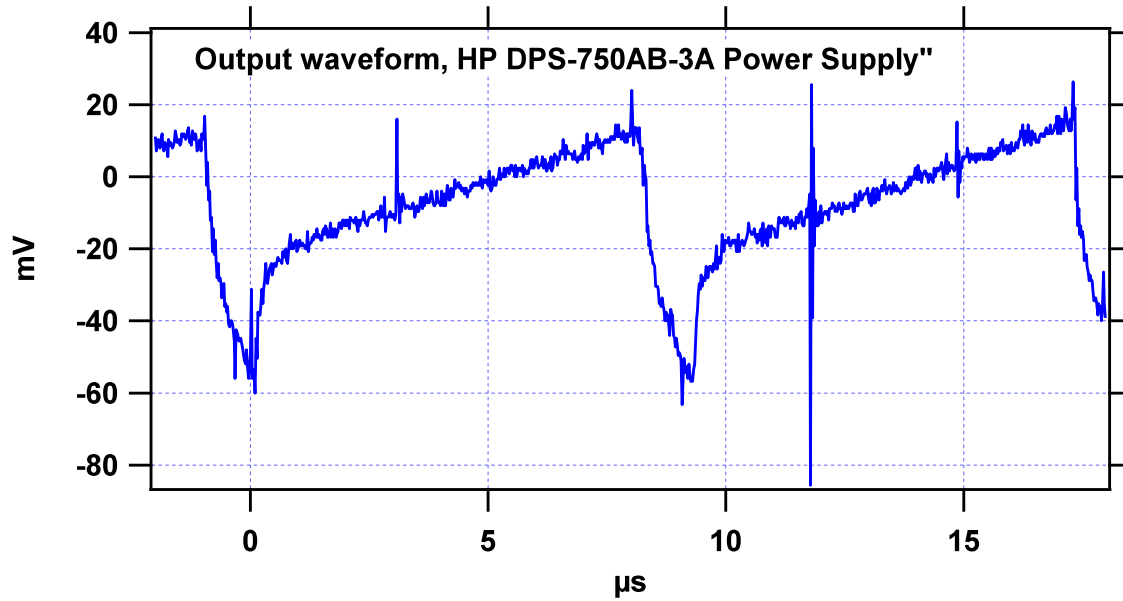
Common-mode Spectrum

The rise above 20 MHz could be completely suppressed with a common-mode choke applied to the AC line cord. Recommended is 10 turns on a 2.4-inch #31 toroid. VHF energy is all leakage from local FM stations.



Output Waveform

Switching frequency is 110 kHz.



Output Spectrum

100 kHz and harmonics are clearly visible. Energy rolls off smoothly into the HF spectrum.

