RFI Test Report – Samlex SEC-1235M Power Supply

Manufacturer: Samlex
Model: SEC-1235M
Serial: 03435-8C01-00414

Description: 120 AC-powered switching power supply, fixed output, 13.8V/30 A.
Purchased from: Ham Radio Outlet

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: Sept 8, 2021

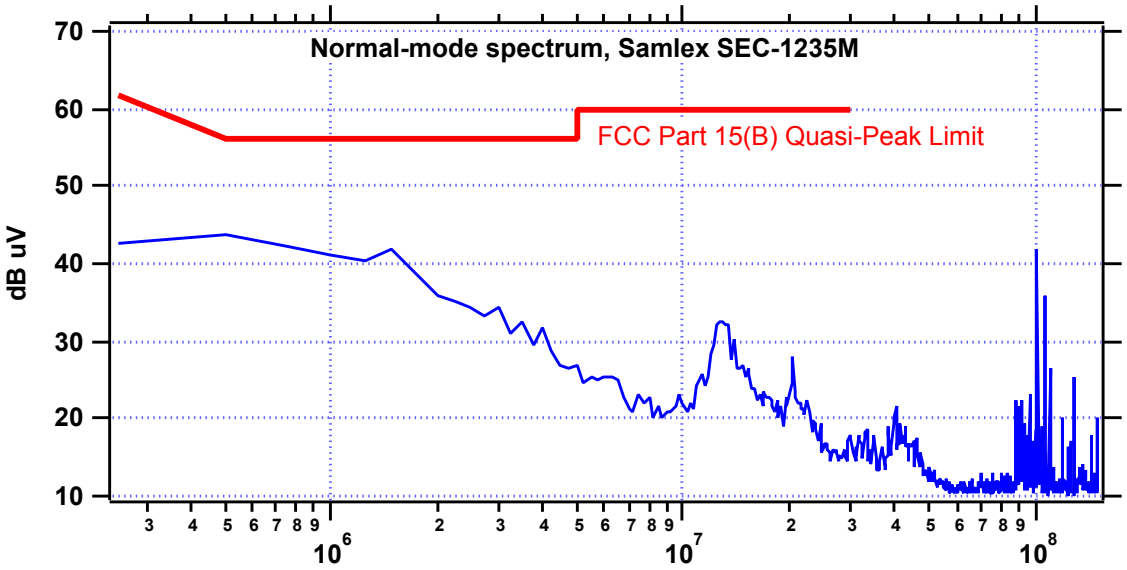
Summary
Recommend for amateur radio stations: YES
FCC Part 15 conducted emissions: Compliant
FCC Part 15 labeling: Compliant

Observations:
All testing performed with a 4 ohm (~3 A) load to represent nominal receive conditions at a typical ham station, where noise is of the greatest concern. DC output voltage was 14.5 VDC (internally adjustable via a small pot). Switching frequency is ~35 kHz. AC line-side noise is basically a low-level, clean 35 kHz sine wave and all harmonic energy is confined to the low HF frequencies. Output has a similar 35 KHz waveform, 30 mV p-p, with harmonics that are at the microvolt level by 2 MHz. There was no VHF noise detected. Note: The rise in the noise spectra around 13.5 MHz was a local RFI source that I was unable to eliminate; it is not characteristic of this power supply. Ditto for the 100 MHz noise. Sorry, I don't have a screen room!

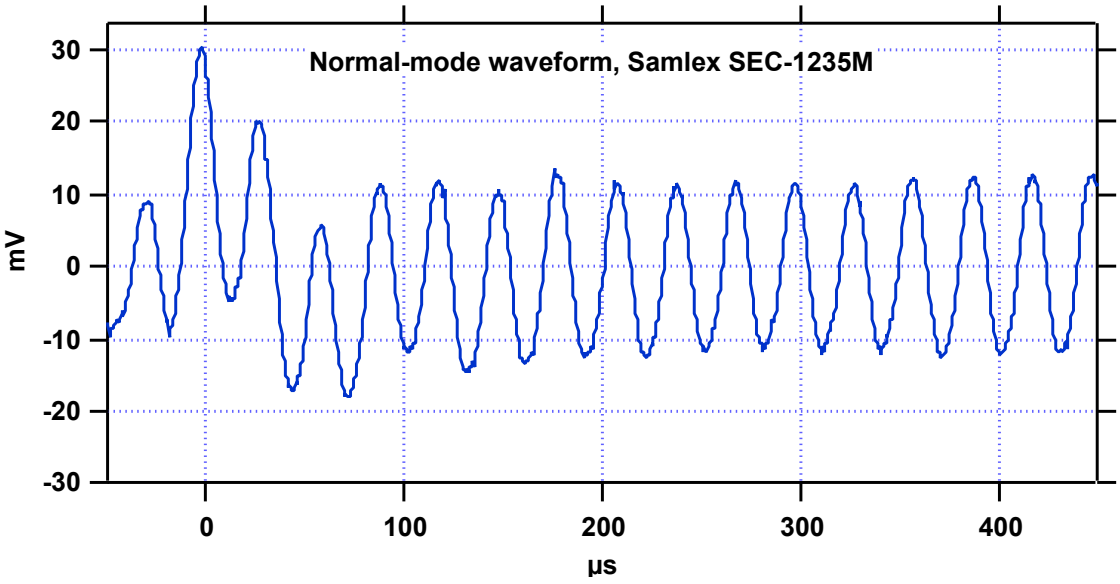
Overall, this is among the quietest switching power supplies that I have measured and easily meets FCC Part 15(B) requirements for conducted emissions. Filtering at the input and output are exceptionally good. Because of that filtering, I would not expect this supply to cause passive harmonic generation in the presence of strong RF fields Highly recommended for ham radio use.

I would also like to put in a plug for Samlex customer service. This supply had an output terminal that we had damaged. After entering a request in the samlex.com online contact form, I was contacted within a couple of hours by a friendly agent. He quickly mailed a new terminal at no charge.

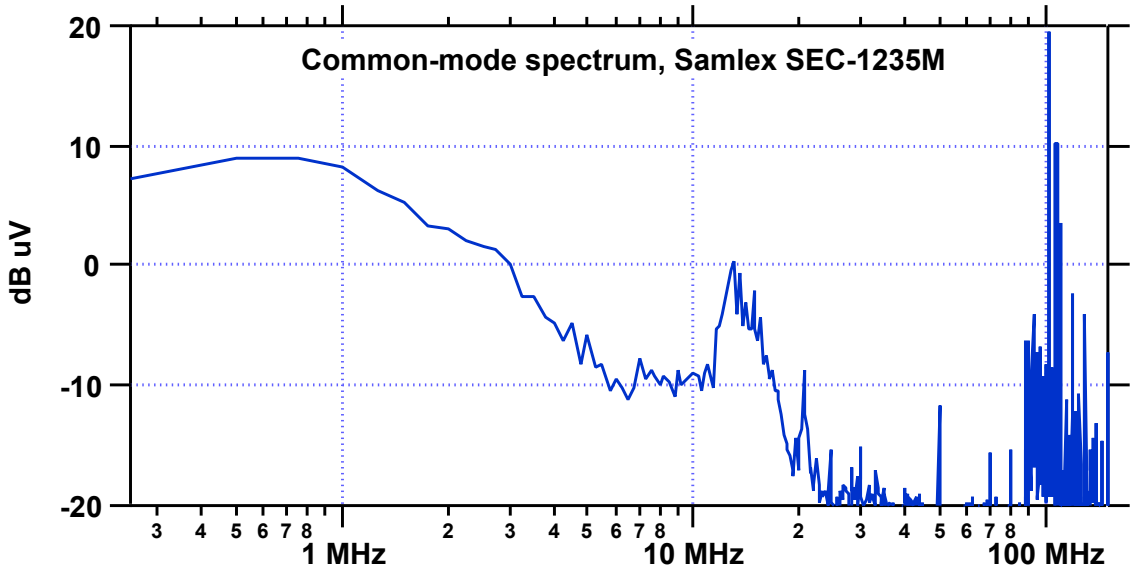
Normal-Mode Spectrum



Normal-Mode Waveform



Common-mode Spectrum



Output Spectrum