RFI Test Report – Apple A1401 12W USB Power Adapter

Manufacturer: Apple
Model: A1401

Model number: A1401  Item number: MD836LL/A
Description: Wall wart module, USB type A socket, 5.2V 2.4A rating
Purchased from: Amazon  Price: $12  (Note: Obsolete, but readily available)

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: Aug 13, 2019

Summary
Recommend for amateur radio stations: YES
FCC Part 15 conducted emissions: Compliant
FCC Part 15 labeling: Compliant, listed on instructions

Observations:
All testing performed with a 10 ohm (500 mA) load. DC output voltage was 5.1 V with low noise. First impression is that this is an extremely quiet switching supply. Switching frequency appears to be 2.7 kHz. Normal-mode noise is well-suppressed and limited to the audio range. The normal-mode spectrum shows that all energy is well below the FCC Part 15 (B) limit. There is very little VHF energy, my measurements being limited by local FM station leakage. Common-mode current is very low with no significant peaks and, again, no VHF energy. Noise is undetectable with my portable HF radio and direction finding antenna beyond a few feet away. Overall, an exceptionally clean device and a fine job by the Apple engineers. If you need to power a 5V device, such as a Raspberry Pi, this is an excellent adapter to choose.
Normal-Mode Spectrum

Apple A1401 Normal Mode Spectrum

FCC Part 15 (B) Quasi-Peak Limit

Normal-Mode Waveform

Apple A1401 Normal Mode Waveform
Common-mode Spectrum

Apple A1401 Common Mode Spectrum

dB uA

MHz