

Technical Note Truecharge and EMI

Truecharge

512-0055-01-01 Rev 1

Overview

The Truecharge battery charger uses an 80 kHz switch-mode converter to convert high voltage input power to low voltage charge current. This circuit can produce some EMI, which is composed of higher order harmonic frequencies, i.e. 160 kHz, 240 kHz, 320 kHz, etc., in decreasing amplitude. This EMI can be conducted along the DC battery lines or be picked up by the TV antennas, getting into the TV circuitry, resulting in picture noise or “snow.”

The noise can affect the TV in two ways:

- a) “transmitted” (through the air) in which case a distance of at least 2–3 m should help reduce the interference, or
- b) “conducted,” where the high frequency noise travels along the DC lines to the DC-powered TV. In this case, you can add a DC EMI filter module to reduce the effect. A DC EMI filter module costs less than \$30 and should be available locally—it usually helps.

An inexpensive RF choke in the power line going directly to the TV may be sufficient. Such devices are often available at 2-way radio specialty stores. A good filter module is available from ICT, part number PCM-12ADL, (604) 888 6304. This is a 12-amp model and can filter the entire output current of a 10-amp charger. In the least, it can be used in the power line to a DC appliance with rating up to 12 A (there are also 25 A and 40 A versions).

EMI is virtually everywhere. Any electrical motor, appliance, or AC power line is a source of EMI. In most cases, the EMI from the charger is not noticed on TVs, but a TV’s susceptibility to EMI does vary (by model and brand) as they have varying abilities to reject/discriminate against EMI noise.

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