

Voltage and Agency Markings on Agency Approved RFI Capacitors

By Andy Bellavia

Questions often arise regarding the voltage and agency markings on RFI capacitors. The following is intended to address the most common concerns.

Why are there no agency markings on certain RFI capacitors which are supposed to be agency approved?

Unlike with finished equipment such as a computer, the safety agencies do not require that RFI capacitors be labeled with the approval marks. Although the marks are commonly applied one might find them missing on certain models, especially the small SMD types. In all cases the actual licenses are the proof of agency approvals. Do not hesitate to ask for copies of the licenses if needed.

Why are there two rated voltages on some capacitors?

This has nothing to do with the capability of the capacitor and everything to do with differences in agency procedures in Europe and North America. In Europe most RFI capacitor applications require that the capacitor be approved according to EN132400 (IEC384-14) at the nominal line voltage. Accordingly various capacitors have various rated voltages for Europe. Our highest is 440VAC.

In North America nearly all applications involving voltages above 250VAC have no agency requirements on the capacitors themselves. In fact there is no UL or CSA approval that is valid for these applications. When one submits a capacitor for UL1414 or CSA C22.2 No.1 approval (applicable only to TV, radio and certain telecom applications) one has only two choices for voltage: 125 or 250VAC. There are no other options.

Therefore it is common to have two rated voltages on the capacitors, one for Europe and one for North America. For example PHE820 has 275VAC (Europe) and 250VAC (UL1414). PHE830 has 275VAC (Europe) and 125VAC (UL1414).

The lower voltage in North America is of no concern unless one is designing a TV, radio, or certain telecom equipment specifically requiring UL1414 approval on the capacitors. So, for example, a desktop computer power supply can use PHE830 in North America even at 250VAC despite the 125VAC UL rating, because UL1414 is not applicable nor required for power supplies.

More information on agency standards is available on our Web site. Just go to the Tech Notes menu and select *Capacitors for RFI Suppression of the AC Line: Basic Facts*. The site also has links to other relevant sites that may be of interest to the reader.

My high-line voltage is 263VAC but Evox-Rifa recommended a capacitor approved at 250VAC. Is this correct?

Yes. The agency approved voltage is the nominal line voltage. The safety agencies perform overvoltage testing at the maximum rated temperature to make sure the capacitor will not fail under high-line conditions.
