

TECHNICAL REFERENCE

INTERFERENCE MODES

Common - Mode

Noise conducting out onto the power line in which the noise voltage is referenced between each line and earth.

Differential - Mode

Noise conducting out onto the input power line in which the noise voltage is referenced between the phases or phase and neutral, independent of earth.

INSERTION LOSS

Insertion loss is a general measure of a filter's performance. Measurements are made using 50ohm source and load impedance's in a static or unloaded condition. Insertion loss is not an absolute measure of performance, but is used as a comparison tool or to define a general performance level.

VOLTAGE RATING

In general, single phase filters are rated for a maximum voltage of 250VAC at 50/60Hz and 480VAC for three phase filters. Radius Power uses capacitors which conform to the latest IEC 384-14 standard permitting operation above these values by 10% and operation to 400Hz up to 250V max.

LEAKAGE CURRENT

Current in the ground/earth of a system at the line frequency. Directly related to the capacitance to ground in the filter.

$$Lk = 2 * (\pi) * F * C * V$$

F = Line Frequency
 C = Capacitance
 V = L_G Voltage

CURRENT RATING

Defined at a given ambient temperature. Single phase filters are generally tested at 40C and three phase at 50C.

HIGH VOLTAGE TESTING

Two categories: type and production. Type testing is once for a duration of 60 seconds. 100% production tests are carried out for a duration of 1-2 seconds.

CLIMATIC RATING

Radius Power filters are designed for the following climatic classification:

25/100/21

25	=	25C Lower Temp Limit
100	=	100C Upper Temp Limit
21	=	21 Days Humidity

COMPONENT RATINGS

Inductive	:	-30%/+50%
Capacitance	:	+/-20%
Resistance	:	+/-10%

AMBIENT TEMPERATURE

Air temperature surrounding a device

FILTER TEMPERATURE DERATING

lamb	=	$IR * (\sqrt{(100-TD)/(100-TR)})$
IR	=	Rated Current
TD	=	Desired Ambient Temp
TR	=	Rated Ambient Temp

BREAKDOWN VOLTAGE

Level of voltage causing a break down of a dielectric (e.g. air) resulting in the flow of excessive leakage current.