

## 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.