



A Credible Passive Harmonic Filter Warranty starts with a Real World Performance Guarantee

Unfortunately, there are those who believe that all passive harmonic filters are both ineffective and unreliable. The truth is that the best passive filters are both the most effective form of harmonic mitigation available and the most reliable. The key is knowing how to differentiate the best from the rest and that starts with understanding the Performance Guarantee that the manufacturer is willing to stand behind.

Having a Performance Guarantee that applies even under severe operating conditions is the only way that a purchaser can be confident that the Product Warranty will be honored under the typical operating conditions that all methods of harmonic mitigation can be subjected to in the 'real world'. For example, what good is a 3 year warranty if it does not cover the filter capacitors when operating in an environment of up to 8% voltage total harmonic distortion (vTHD) when harmonic standards, such as IEEE Std 519-2014, allow for these levels of distortion.

What Constitutes a Real World Performance Guarantee?

All forms of harmonic mitigation will be affected, at least in some way, by the pre-existing conditions of the power supply. The most influential of these are background voltage distortion and voltage imbalance. Voltage imbalance can lead to imbalanced current being drawn by the non-linear load that is being treated, such as a variable speed drive. Unbalanced currents can produce non-characteristic harmonics, such as the 3rd, resulting in higher current total harmonic distortion or iTHD. Not only does that result in the harmonic mitigation needing to remove more harmonic current, these currents can be at frequencies that the filter was not designed to address. So to maintain good performance, the harmonic mitigation must be very effective at removing the harmonics that it is designed for while reducing or, at least not amplifying, the uncharacteristic harmonics that may appear.

Pre-existing voltage distortion is an even more difficult challenge for all harmonic mitigation equipment. Not only does it also increase harmonics generated by the non-linear load equipment, it can negatively affect performance and lead to overloading of the harmonic mitigation equipment itself if it is not designed to withstand this distortion.

How Mirus' Lineator AUHF Warranty and Performance Guarantee is Better than the Rest

Let's start with the fact that Mirus is the only known manufacturer that guarantees performance of its input passive harmonic filter with background voltage distortion up to 5% and voltage imbalance up to 3%. We can do this because our filter's tuned frequency at its input is below the characteristic harmonics present on power systems thereby preventing importation or amplification of harmonics resulting from resonance.

In addition, our design provides filter capacitors with significant safety margins in both current and voltage and are rated for high background/source harmonic levels. This substantially extends their life expectancy allowing Mirus to be the only manufacturer who warrants the entire filter, including capacitors, when background vTHD levels are as high as 8%.

Since IEEE Std 519-2014 allows for vTHD levels up to 8% on power systems below 1000V, any harmonic mitigation that cannot handle these levels of distortion without derating cannot really claim that they meet this standard. To truly meet this standard, current distortion limits must be met but also, the filter and its components should withstand IEEE-519 allowable voltage distortion levels.

So it is important to read the fine print in the passive filter's Warranty and Performance Guarantee. Only a filter that meets the current distortion requirements of the associated harmonic standards under real world operating conditions as well as withstands the allowable voltage distortion within those standards will truly provide buyer protection.

Click here for [Lineator Warranty & Performance Guarantee](#)