

Case Study: Electrical Inspection on MCC Cabinets with Ultrasound

The Motor Control Centre is a very important component of industrial electrical infrastructure. By providing control & protection to electric motors and other production assets, a healthy MCC cabinet improves the efficiency, reliability, and safety of a facility.

Ultrasound condition monitoring is an effective way to pinpoint common electrical system defects such as arcing, tracking, partial discharge, and corona. The high-frequency noise generated by each of these common electrical defects makes the source of the problem easy to locate with airborne ultrasound detection.

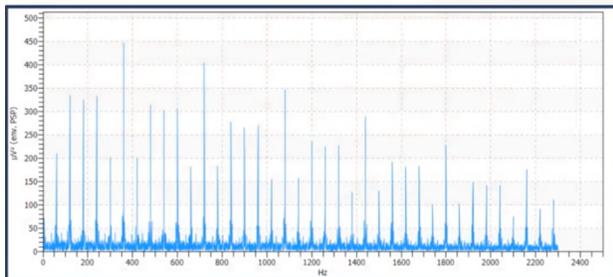
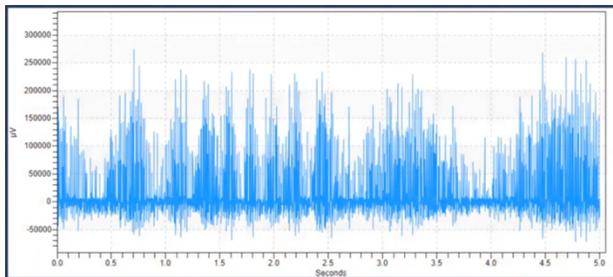


Figure 1: Ultrasonic TWF & FFT captured by SDT340, Analyzed in UAS3

Ultrasound's ability to detect a wide range of electrical defects is why it is outlined in NFPA70B as a one of the condition monitoring technologies suitable to perform mandatory inspections on electrically charged assets & systems.

When one of our customers was performing an ultrasonic electrical inspection on a newly installed MCC, their SDT340 picked up an unnatural buzzing noise. It seemed, no matter where they scanned throughout the room, their ultrasound data collector was picking up this noise.

The source of the signal captured at its highest point can be seen in the Figure 1.

When faced with a situation such as this, where there is an ultrasound signal permeating around a room or throughout multiple electrical assets, then

the ultrasonic technique to locate the most likely source of the defect is to search for the highest db value picked up by your ultrasound device.

As seen in Figure 2, the highest point that was measured was 42.6db. The maintenance team later performed a visual inspection on the source of the ultrasonic buzzing to find a loose connection that was promptly repaired.



Figure 2: MCC Ultrasound Sources

Follow up measurements revealed the source of the ultrasound was eliminated.