

# POOR AIRGAP IN 3000HP MOTORS IDENTIFIED IN BOILER AIR FAN APPLICATION

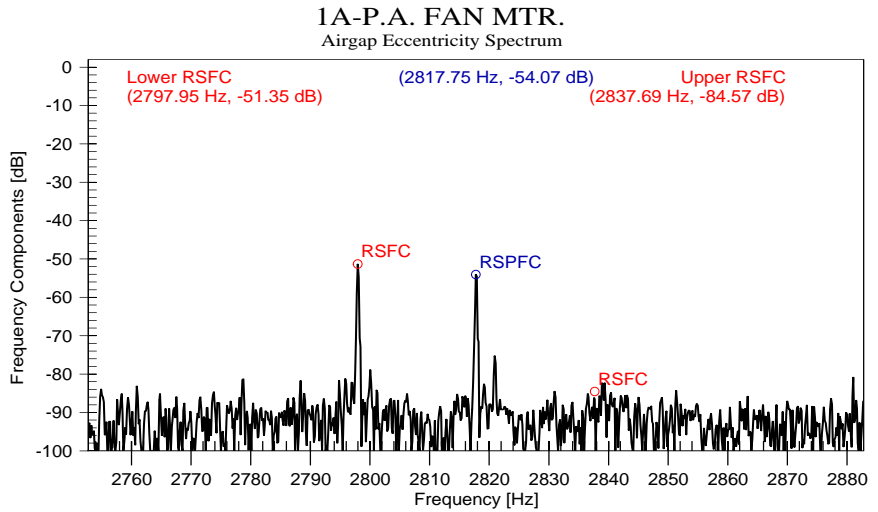


Figure 1. Airgap Eccentricity Spectrum

**Company:** Utility in Texas, USA  
**Ratings:** 3000 HP, 4.16 kV, 60 Hz,  
 1184 rpm, 108 stator slots,  
 133 rotor slots, 4 motors

**Manufacturer:** Confidential

**Details:**

The Boiler Primary Air Fan motors showed high vibration levels, which appeared to be electro-magnetically induced. In February 2006, the CSMeter was used to perform broken bar and airgap eccentricity (AGE) tests. After about 2 minutes per motor the CSMeter came up with a diagnosis, on its LCD screen, that the rotor windings on all four were healthy, but that the AGE was unacceptable on the three of them. This was confirmed by the current spectra, displayed by the CSMeter. The FIGURE 1 shows the spectrum of one of the motors, with an AGE severity of 13.89 dB (average difference between the RSPFC and RSFC sidebands). A severity of less than 15dB indicates poor AGE. This finding provided guidance to the utility in question as to what type of inspections were required to determine the cause of this problem. The problem was finally corrected, and the vibration was reduced to acceptable levels.

