**Interpretation of**

**ANSI/AMCA Standard 204-2005**

**Balance Quality and Vibration Levels for Fans**

**#2**

(Approved 8/05/2020)

**Request from**: Jeremiah Graaf, United Metal Products, Inc (UMP), 1920 E. Broadway Rd., Tempe, AZ 85282

**Reference:** The request for interpretations refers to the requirements presented in AMCA Standard 204-05, Balance Quality and Vibration Levels for Fans, Sections 3.1.12 & 3.1.22 and Table 6.3 relating to Rigid vs Flexibly Mounted Fans

**Background:** AMCA 204-05 is considered *the* standard for fan vibration between our customer and UMP (Air Handler Manufacturer). In table 6.3, the acceptable values for fan vibration are provided in either a rigid or flexible category. The common interpretation is that a flexible mounting means that the fan has springs, and rigid mounted means there are no springs. The common interpretation is in conflict with the definition of flexible support and rigid support.

**Interpretation**: Our interpretation is that the determination of a fan being flexibly or rigidly mounted is by doing a bump test on the fan support structure, after it is installed, to find its natural frequency. If the first natural frequency is found to be below the operational speed, then the fan is considered flexibly mounted. If the first natural frequency is above the operating speed, then the fan is considered rigidly mounted.

For Example: The graph below, showing a natural frequency 750 cycles/min would be considered flexibly mounted, if the operating speed were 1200 RPM.

**Question:** Is this Interpretation correct?

**Answer:** See comments

**Comments:** The interpretation of what determines if a fan is flexible mounted or rigidly mounted fan is correct, however a simple bump test may not correctly establish that the first natural frequency found is related purely to the mounting of the fan or some other design consideration, a more detailed test may be required. The support vendor should be consulted for information regarding the first natural frequency of the support system.