**Interpretation of**

**ANSI/AMCA Standard 204-2005**

**Balance Quality and Vibration Levels for Fans**

**#3**

(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 6.3 and 6.4 and Tables 6.2 and 6.3 relating to Rotational Speed vs VFDs.

**Background:** AMCA 204-05 does not really address the use of VFDs. For Tables 6.2 and 6.3, these values are for “rotational speed”. Our interpretation of rotational speed is the operational speed in which the fan was designed for. Without a VFD, this would be the synchronous speed of the motor (plus speed adjustments with belts and pulleys, if applicable). For our application, the fans are direct drive and have VFDs. The airflow is varied based upon conditions. There is a design Max Failure RPM and a Normal Mode RPM. But in reality, the fan can operate at any point along the curve. This situation is not addressed in AMCA 204-05; but we noticed that it is addressed in ISO 14694 (which is in harmony with AMCA 204-05). In ISO 14694 to paraphrase Table 4 Note 3, it states that the measurement values are for the design duty point of the fan, and if measurements are taken across more operating points, then the readings could be more than the vibration limits that appear in the table; but the readings shouldn’t be more than 1.6x (and work it out with your customer for whatever is mutually agreeable).

**Interpretation**: VFDs or Fans with Multiple Duty Points are not addressed. How should the values of tables 6.2 & 6.3 be used when taking vibration measurements across the entire fan curve?

**Question:** Is this Interpretation correct?

**Answer:** See comments

**Comments:** Tables 6.2 and 6.3 only apply to rated operating points agreed to by the fan manufacturer, for operation at other speeds or flow conditions the fan manufacture should be consulted to determine allowable vibration limits.