

Institute of Environmental Sciences and Technology

IEST-RP-NANO201.1

Contamination Control Division, Nanotechnology
Recommended Practice 201.1

Measuring and Reporting Vibrations in Advanced- Technology Facilities



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1 SCOPE AND LIMITATIONS

1.1 Scope

This Recommended Practice (RP) is intended to establish guidelines for conducting vibration measurements and reporting data where vibration-sensitive scientific instruments are located in existing or planned advanced technology facilities. This includes facilities for nanotechnology, quantum computing, microelectronics, pharmaceutical and biological research, metrology laboratories, and other research, development, and production facilities in which vibration control is important.

These guidelines are specifically for the following:

- a) Selecting suitable instrumentation and hardware for use in vibration measurements
- b) Establishing sensitive process tool vibration thresholds
- c) Conducting vibration measurements on sites and in facilities
- d) Reporting results of vibration measurements in a uniform and consistent format

Some of this vibration-sensitive equipment is used in the manufacture, measurement, and inspection of integrated circuits. Such equipment may be collectively referred to as "process tools" in this RP.

Because equipment used in a wide variety of technological applications is sensitive to vibration and sound, it is therefore necessary to establish levels of vibration sensitivity for them and to ensure that vibrations occurring in the facility or at the site at which they are located are below those levels.

1.2 Limitations

This RP focuses on vibration. Although measurement and reporting of acoustical environments are equally important, they are not the subject of this RP. However, other documents such as ANSI *SI.1*, *SI.4*, *SI.11*, and *SI.13* (see Section 2) are available for those seeking guidance in measuring acoustical noise.

This document does not espouse one format of criterion over another, although it provides several example criteria that meet the recommended parameters given here. It assumes that a criterion, such as that contained in a Site Requirements Guide, is available. Further, it assumes that the criterion is stated with enough precision to allow its unambiguous application. However, in the event that the criterion contains ambiguity, the parameters required for clarity are given. If this document is to be used as a guideline to develop a criterion, those same parameters may be used to minimize the risk of ambiguity.