# **NAV 04 CALIBRATION AND USE OF MEASURING AND TEST EQUIPMENT**

***Applicable Standards***

***ANSI Z540.1 / ISO 9001-2000 / ISO 10012-2003***

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| 1. Does the supplier have a documented system to control the use and calibration of measuring and test equipment?
 | Yes No[ ]  [ ]  |
| 1. Are employees of the supplier trained in the use of calibrated Measuring and Test Equipment?
 | Yes No[ ]  [ ]  |
| * 1. Does the supplier maintain records of this training?

 | Yes No[ ]  [ ]  |
| 1. Are tools, gauges and test equipment identified in a manner to indicate calibration status? Does this include:
 | Yes No[ ]  [ ]  |
| * 1. Date calibrated/inspected and/or date due for calibration/inspection?

 | Yes No[ ]  [ ]  |
| * 1. Item identity or serial number that is traceable to a detailed calibration record?

 | Yes No[ ]  [ ]  |
| * 1. Tamper resistant seals used to protect operator accessible adjustments that would invalidate calibration.

 | Yes No[ ]  [ ]  |
| * 1. Are items which are not calibrated to their full capability or which require functional check only labeled to indicate the applicable condition?

 | Yes No[ ]  [ ]  |
| 1. Does the supplier have the necessary gauges and measuring devices to permit reliable inspections to meet the procedural acceptance criteria?

 | Yes No[ ]  [ ]  |
| 1. Are employee-owned tools and gauges used for product acceptance subject to the same controls as company-owned equipment?

 | Yes No N/A[ ]  [ ]  [ ]  |
| 1. Are customer-furnished tools, gauges and test equipment adequately controlled?

 | Yes No N/A[ ]  [ ]  [ ]  |
| 1. Is calibrated M&TE used in a controlled environment to limit the affects on the results of measurements?

 | Yes No[ ]  [ ]  |
| * 1. Where this is not possible are the environmental affects monitored and recorded to correct measurement results?

  | Yes No N/A[ ]  [ ]  [ ]  |
| 1. Are adequate facilities used for transportation, storage and calibration of all tools, gauges and test equipment?

 | Yes No[ ]  [ ]  |
| 1. Does each piece of measuring and test equipment used to determine compliance with customer technical specifications have a calibration/inspection record?

 | Yes No[ ]  [ ]  |

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| 1. Do these calibration/inspection records reflect:
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| * 1. Item identity number and name?

 | Yes No[ ]  [ ]  |
| * 1. Frequency of calibration?

 | Yes No[ ]  [ ]  |
| * 1. Procedure used for calibration/inspection?

 | Yes No[ ]  [ ]  |
| * 1. Date calibrated/inspected and due date for next calibration/inspection?

 | Yes No[ ]  [ ]  |
| * 1. Personnel performing calibration/inspection?

 | Yes No[ ]  [ ]  |
| * 1. Calibration actions taken (adjustments, repairs, etc)

 | Yes No[ ]  [ ]  |
| * 1. Actual measurements/values documented before and after calibration actions?

 | Yes No[ ]  [ ]  |
| * 1. Standard used (traceable to NIST)?

 | Yes No[ ]  [ ]  |
| 1. When M&TE is found to be out of calibration does the supplier have a method for determining the impact on previously accepted products?

  | Yes No[ ]  [ ]  |
| 1. When M&TE is found to be out of calibration does the supplier have a method for notifying customers who may have received affected product?

 | Yes No[ ]  [ ]  |
| 1. Does the supplier use outside calibration laboratories?
 | Yes No[ ]  [ ]  |
| * 1. Are outside laboratories evaluated for acceptability?

 | Yes No N/A[ ]  [ ]  [ ]  |
| * 1. If a third party performs these evaluations record the accreditation organization used and the standard accredited to.

 | Yes No N/A[ ]  [ ]  [ ]  |
| * 1. Are these laboratories on an approved subcontractor list?

 | Yes No N/A[ ]  [ ]  [ ]  |
| 1. List Calibration Labs used

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| 1. Does the supplier have a documented system to manage and perform calibration of M&TE?

      | Yes No N/A[ ]  [ ]  [ ]  |
| * 1. Are calibration/recall procedures readily available to the calibrating personnel?

      | Yes No N/A[ ]  [ ]  [ ]  |
| * 1. Are personnel involved in calibrating M&TE trained to local calibration procedures and the appropriate higher level requirements?

      | Yes No N/A[ ]  [ ]  [ ]  |
| * 1. Are records of this training maintained?

 | Yes No N/A[ ]  [ ]  [ ]  |

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| 1. Do these procedures provide for:
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| * 1. Adjustment of calibration frequency?

 | Yes No[ ]  [ ]  |
| * 1. Determining the adequacy of measuring/test equipment and procedures?

 | Yes No[ ]  [ ]  |
| * 1. Identification and prevention of use of any equipment which does not perform satisfactorily**?**

 | Yes No[ ]  [ ]  |
| * 1. Definition of significant out-of-tolerance conditions?

 | Yes No[ ]  [ ]  |
| * 1. Written notification by calibration activity to the user or a designated organization of significant out-of-tolerance conditions?

 | Yes No[ ]  [ ]  |
| * 1. Corrective action by supplier on affected product?

 | Yes No[ ]  [ ]  |
| * 1. A checkout and accountability system to assist in locating M&TE equipment for recall purposes?

  | Yes No[ ]  [ ]  |
| 1. Are calibration intervals for measuring and test equipment and measurement standards established to assure that M&TE will remain in tolerance throughout the calibration interval?

  | Yes No[ ]  [ ]  |
| * 1. Does the supplier have a system to recall of all calibrated items at the end of their calibration interval?

 | Yes No[ ]  [ ]  |
| * 1. Are items returned for calibration as scheduled and/or when found to have broken calibration seals, damaged, or malfunctioning?

  | Yes No[ ]  [ ]  |
| * 1. Does the calibration lab or calibration contractor provide the end user notification of any out of tolerance conditions?

 | Yes No[ ]  [ ]  |
| 1. Are applicable tools, gauges and test equipment used in the calibration of M&TE traceable to a National Institute of Standards Technology Standard or Intrinsic Standard?

  | Yes No[ ]  [ ]  |
| 1. Is all equipment that can affect the results of calibrations calibrated and/or verified before being used to calibrate M&TE?

 | Yes No[ ]  [ ]  |
| 1. Are inactive standards identified as “inactive” or “calibration not required”?

 | Yes No[ ]  [ ]  |
| 1. Does the Calibration Lab maintain cleanliness and provide for protection of test equipment?

 | Yes No[ ]  [ ]  |

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| 1. Does the Calibration Lab monitor and control environmental factors in order to mitigate their effects on the calibration process or provide appropriate adjustments when necessary?

  | Yes No[ ]  [ ]  |
| 1. Are the standards utilized of a sufficient accuracy level to attain a 4 to 1 test accuracy ratio for the characteristic being calibrated?

 | Yes No[ ]  [ ]  |
| * 1. If other test accuracy ratios less than 4 to 1 are maintained or are they limited by the state of the art or allowed by contract?

 | Yes No[ ]  [ ]  |
| 1. Review and record a sample of measuring and test equipment serial/traceability numbers:Sample Size:      Serial/Traceability Numbers:

Are all calibration labels attached as required and current?      Do calibration records exist for all items in the sample?       |  |

Additional concerns/comments: