

## Submitting ISTA Lab Certification Materials Electronically

Congratulations on your decision to certify your laboratory with ISTA! You will need the following documents to complete ISTA lab certification:

- Equipment Verification Forms
- Video Procedure
- Lab Technicians list

If you are missing any of the documents, please contact Meredith Dougherty, [meredith@ista.org](mailto:meredith@ista.org) (+1 517-333-3437 ext 217).

The ISTA lab certification procedure requires a video to be taken of all equipment used for ISTA preshipment testing and must be repeated every two years regardless of whether changes have occurred since the last re-certification. The video must include all parts of the video procedure (please note the checklist on the last page of the procedure - that will help you generate the video). Your video will be kept on file with ISTA, and therefore will become ISTA property. For this reason, please consider making a backup of your video to keep at your facility. If you need your video returned for any reason, please contact me.

The video can be sent to us in any one of many different formats, including but not limited to:

- VHS
- VHS-C
- Hi8
- MiniDV
- digital video (.mpg, .avi, .mov, .wmv, .mod, .mp4, .rar, .zip); on CD, DVD or online (see below)

If you have a different format, please contact me to be sure it is accepted.

Please note that submitting your video in the NTSC format is strongly recommended. PAL tapes will need to be re-formatted in order for us to review them, which will cause a long delay in the review and approval process.

Also needed for re-certification approval are Equipment Verification Forms. These forms are vital to documenting your laboratory's capabilities and capacities. **A form must be filled out completely for each piece of equipment used for ISTA testing.**

Additional documents that must be submitted with your lab certification, and which can also be sent electronically, include:

- Calibration certificates to a traceable source (calibration is required on an annual basis)
- Control plots if certifying to Procedures 3A or 3E, and/or to Project 3B


Submitting your forms and video can be done one of many ways:

- US Postal Service, UPS, FedEx, DHL, Airborne, or other carrier – please send to ISTA at the address above
- Email to [meredith@ista.org](mailto:meredith@ista.org)
- Use your company's FTP (email me the link and directions)
- Use the ISTA upload feature: <http://www.ista.org/upload.php> (see below!)
- Use <http://www.rapidshare.com> (upload your video then email me the Download Link)
- Use another file sharing program (such as [www.yousendit.com](http://www.yousendit.com))

If you use the ISTA upload feature, please [email](mailto:meredith@ista.org) me that your file(s) have been uploaded. **This webpage can accept files totaling up to 100MB; you may upload more than one file.**

Re-certification approval is normally made within 7-10 business days after receipt of the video and equipment verification forms.

If you have any questions or concerns, I would encourage you to contact me at +1 517-333-3437, or [meredith@ista.org](mailto:meredith@ista.org).

Sincerely,  
  
Meredith Dougherty  
Vice President, Technical



## LABORATORY CERTIFICATION PROCEDURE

UPDATED: June 2008

distributing confidence, worldwide.™

### I. Introduction

Utilization of the ISTA® Transit Tested Program has established the effectiveness of ISTA® Preshipment Testing procedures as a deterrent to in-transit damage. The Transit Tested Program is based upon the concept that industry shall continue to progressively improve its performance packaging through preshipment testing so that an economic balance between overall packaging costs and physical distribution adequacy can be attained.

The purpose of the Laboratory Certification from ISTA is to confirm that all such facilities are properly equipped and competently staffed to perform and evaluate preshipment testing of packaged-products in accordance with ISTA® Preshipment Test Projects and Procedures, and that their results are within the same range as other ISTA Certified Laboratories.

### II. Scope

The Laboratory Certification Procedure is designed to help standardize test results between package testing laboratories that wish to obtain and/or continue their membership as a Certified Laboratory of ISTA.

The certification of any testing laboratory is dependent upon its possession of the necessary equipment, properly installed and maintained. Operating personnel must be capable of performing preshipment tests on packaged-products in accordance with ISTA® Test Procedures, evaluating results and completing Certified Laboratory Test Report forms.

Certification must be performed initially, upon application, and then biennially or as called for by the Technical Council, by the member laboratory under responsible supervision.

Data developed during the certification should be recorded on ISTA® Equipment Verification forms as appended herein, and the originals forwarded to ISTA. An evaluation of the data, with appropriate comments, will be provided to the laboratory within thirty (30) days after receipt of the completed Equipment Verification forms and video. In the event that the evaluation discloses a need for the adjustment of laboratory equipment, appropriate suggestions regarding remedial action will be made by the Director of Member Services of ISTA.

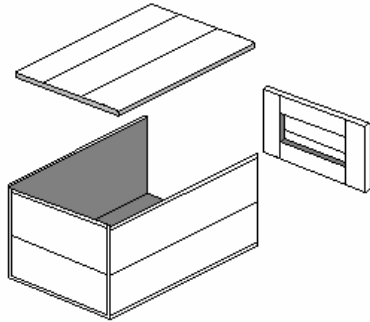


Figure 1: Style 2 Nailed Wooden test box

## Calibration Equipment Required

- A. A substantial wood box (**corrugated containers will not be accepted**) filled with sand or equivalent to a gross weight of 100 lb (45 kg). In order to maintain uniform data, it is required that this test box be a Nailed Wooden Box (end cleats INSIDE), measuring approximately 24" x 18" x 10", OD. It is recommended that it be retained and kept continuously available for periodic equipment calibration (**See Figure 1**).
- B. Carpenter's level
- C. Calibrated tachometer or speed indicator for determining shaft RPM.
- D. Metal shim 1/16 inch thick, approximately two (2) inches wide.

## IV. Procedure (items denoted with an \* must be video taped; video should be submitted to ISTA for review.)

### A1. Fixed Displacement Vibration (Rotary motion)

1. Inspect the table surface. Rough, worn or painted surfaces should be replaced or cleaned.
2. Check the mounting bolts for tightness.
3. \* Operate the machine through its entire frequency range to determine smoothness of operation.
4. \* Show that the table surface is level:  
 With the machine turned off, place a carpenter's level on the center of the table, parallel with the direction of motion. Manually rotate the **carpenter's level** slowly through one complete revolution. Should the bubble deviate from its original position, the table surface is not level and adjustment is required before certification will be approved.
5. \* Verify phase relationship of the primary and secondary shafts:  
 Clamp a wooden pencil at a corner of the table, parallel to the shafts, with the point extending beyond the edge. With the table operating at about 250 CPM, slowly bring a blank sheet of paper mounted on a stable surface (i.e., clip board attached to a hand truck) into steady contact with the pencil point for several revolutions. Repeat at each corner. If the resultant figures appear as 1" diameter circles at all four (4) locations then the shafts are operating in phase. Should any of the resultant figures appear as an ellipse, or outside of the tolerance of  $\pm 1/16$ ", then the shafts are out-of-phase and adjustment is required before certification will be approved.
6. \* Center the 100 lb wooden test box on the vibration table with one end panel against a fence (as applicable). Start the table at a low frequency and slowly increase the vibration frequency until the metal shim may be slipped along under the bottom edge of the box. You should be able to move the shim intermittently (at the top of each cycle) along one entire edge of the box in a direction parallel to the motion of the vibration tester.
7. Complete **FIXED DISPLACEMENT VIBRATION Form** and return to ISTA along with circles requested in A1.5 above.

## **A2. Vertical Linear / Random Vibration**

1. Inspect the table surface. Rough, worn or painted surfaces should be replaced or cleaned.
2. Check the mounting bolts for tightness.
3. \* Operate the machine through its entire frequency range to determine smoothness of operation.
4. \* Place the wooden test box on the unit and vibrate for several minutes, observing the machine's operation. Adjust any discrepancies in accordance with the manufacturer's service manual.
5. Complete **VERTICAL LINEAR / RANDOM VIBRATION Form** and return to ISTA.

## **B1. Incline Impact Tester**

1. Inspect the dolly surface. Rough, worn or painted surfaces should be replaced or cleaned.
2. Check the mounting bolts for tightness.
3. \* Make a number of empty dolly impacts from the top of the incline to assure free running of the wheels and smoothness of operation.
4. \* Follow instructions on Page 2 of form to complete Verification Test.
5. Complete both pages of the **INCLINE IMPACT TESTER Form** and return to ISTA.

## **B2. Horizontal Sled Impact Tester**

1. Inspect impact surface. Rough, worn or painted surfaces should be replaced or cleaned.
2. Check mounting bolts for tightness and rails for alignment and smoothness of surface.
3. \* Make a number of impacts to assure free running and smoothness of operation.
4. Complete **HORIZONTAL IMPACT SLED Form** and return to ISTA.

## **C1. Free Fall Drop Tester**

1. Inspect the surface of the drop table leaves, swing arm platform or other surface on which the packaged-product being tested may rest. Rough, worn or painted surfaces should be replaced or cleaned.
2. Check the surface upon which packaged-products are dropped. Rough, worn or warped areas should be replaced.
3. \* Determine that dropping surface is an unyielding (solid) base by tapping on it with a hammer or other device.
4. \* Operate release mechanism to determine that packaged-products fall freely.
5. \* Determine that release mechanism allows the packaged-product to strike base properly (i.e., that base is horizontal and that packages dropped impact the base with no deviation from the horizontal). This is accomplished by doing sample drops on a corner, edge, side and end, using a 5-25 lb actual or simulated packaged-product.
6. Complete **FREE FALL DROP TESTER Form** and return to ISTA.

## **C2. Shock Test System**

1. Inspect any surface on which the packaged-product being tested may rest. Rough, worn or painted surfaces should be replaced or cleaned.
2. Check the mounting bolts for tightness. Determine that unit is anchored in accordance with manufacturer's recommendations to an unyielding (solid) base.
3. \* Operate release mechanism to determine if packaged-product receives indicated shock accurately.
4. \* Determine that release mechanism allows the packaged-product to be impacted solidly. This is accomplished by doing a sample test on a corner, edge, side and end, using a 5-25 lb actual or simulated packaged-product.
5. Complete **SHOCK TEST SYSTEM Form** and return to ISTA.

## **D. Compression Tester**

1. Inspect all surfaces to be certain that they are smooth and horizontal when at rest.
2. \* Operate unit to assure that compression rate is constant and within limits (use a measuring tape and run the machine, showing that the platen moves at the required rate).
3. \* Load and operate unit to see that platens do not deflect at a maximum rated load (do not use maximum force if it will damage the machine).
4. Complete **COMPRESSION TESTER Form** and return to ISTA.

## **E. Environmental Condition Chamber**

1. Inspect unit to see that seals are tight and not worn.
2. \* Operate unit and verify that temperature can be maintained within +/- 4 degrees Celsius (show instrumentation).
3. \* Operate unit to verify that relative humidity can be maintained within +/- 5% (show instrumentation).
4. Submitting charts or graphs showing temperature and humidity function is strongly recommended.
5. Complete **ENVIRONMENTAL CONDITIONING CHAMBER Form** and return to ISTA.

## **VIDEO PROCEDURE**

### **Scope and Purpose**

This section of the ISTA Laboratory Certification procedure involves video taping the equipment and methods involved in certification, in lieu of an on-site inspection. This procedure is used for existing laboratories needing re-certification and by new laboratory members submitting their initial certification. This procedure is **required** on a biennial basis, regardless of changes to equipment.

### **Material Required**

See previous documentation for calibration equipment required. In addition, the following will be needed for the video:

1. A video camera (tape or digital).
2. A blank video tape (NTSC or PAL format acceptable, however NTSC is highly recommended to avoid delays in processing) **OR** CD-ROM or DVD for digital video.
3. Blank sheets of paper and black pen for making titles.

*Tapes submitted with certification requests will not be returned. You should retain a copy for back-up and for your records.*

### **Steps for Video**

**(a check list is included on Page 7 for your convenience)**

1. Load a blank tape or digital media and prepare camera. A tripod, special lighting, batteries or electrical service or other accessories may be required according to the situation.
2. Prepare a title on a sheet of paper and videotape for approximately 10 seconds. Include the applicant laboratory name and address, Member ID number if applicable, and the date of taping. Additional titles may be used throughout the taping to identify equipment, but are not required.
3. Progress through the steps of **Section IV. Procedure** in this document. Video tape each step in the Procedure that applies to your laboratory (required steps are labeled with an \*). For each piece of equipment also show an overall view of the equipment, followed by the procedure as defined. When possible, zoom in to show details of the process. (Tip: having an assistant run the video equipment is easier than doing everything with one person.) Observe the following items in each section that applies to your laboratory:

**A1. Fixed Displacement (Rotary Motion) Vibration:** show overall view, frequency run-through, phase relationship test: parts a & b (please include circles with your verification forms), and wooden test box.

**A2. Vertical Linear/Random Vibration:** show overall view, frequency run-through, wooden test box, and control system during sine and (if so equipped) random vibration.

**B1. Incline Impact:** show overall view, instrumentation, and verification test (Page 2 of form).

**B2. Horizontal Impact Sled:** show overall view, several impacts, and the control and measurement system.

**C1. Drop Tester:** show overall view, close-up of release mechanism, view of base, and at least one drop on an end, a side, a corner and an edge. A corrugated box weighing 5-25 lb may be used for this demonstration test.

**C2. Shock Tester:** show overall view, several typical drops, and the control and measurement system. A corrugated box weighing 5-25 lb may be used for the demonstration test.

**D. Compression:** show overall view, constant compression rate, one typical package test, plate deflection test at a maximum rated load, and control and measurement system.

**E. Environmental Chamber:** show overall view, and control and measurement system.

**F. Additional lab information** such as an overview of the entire lab area and the building is recommended but not required.

**IMPORTANT NOTE:** Questions or concerns regarding the above procedures should be directed to the Director of Member Services at +1 517-333-3437. The above video procedure is *in addition to* all of the information and procedures normally required. **All equipment forms and results should be sent, along with the video, to:**

**ISTA Headquarters  
1400 Abbot Road, Suite 160  
East Lansing, Michigan 48823-1900 USA**

#### **LABELING YOUR VIDEO TAPE**

Due to the way we store video tapes at ISTA Headquarters, it is strongly recommended, and highly appreciated, if you label your tape, CD or DVD with the following information: **Lab Name, Member ID and Date of taping**. If the tape has a spine, labeling that with this information is also recommended.

A checklist is included on the next page for your use during the video portion of this procedure.

You may use the following Check List to be sure that all pertinent information is included on your videotape. This form is for your use and need not be returned with the forms and video.

CATEGORY	FUNCTION TO TAPE	DONE
A1/A2: Vibration	Overall View	<input type="checkbox"/>
Freq	Frequency run-through	<input type="checkbox"/>
	Phase Relationship A (circles - Rotary Motion only)	<input type="checkbox"/>
	Phase Relationship B (level - Rotary Motion only)	<input type="checkbox"/>
	Use of Test Box and metal shim	<input type="checkbox"/>
B1/B2: Incline/Horizontal Impact	Overall view	<input type="checkbox"/>
	Impacts, free running	<input type="checkbox"/>
	Verification test (fill out back side of equipment form)	<input type="checkbox"/>
Control	view	<input type="checkbox"/>
C1/C2: Drop/Shock	Overall view	<input type="checkbox"/>
	Release mechanism shown	<input type="checkbox"/>
	Sample drops (end, side, corner, edge)	<input type="checkbox"/>
D: Compression	Overall view	<input type="checkbox"/>
	Operate unit - show sample test	<input type="checkbox"/>
Platen	deflection	<input type="checkbox"/>
Controls	view	<input type="checkbox"/>
E: Environmental Chamber	Overall view	<input type="checkbox"/>
Controls	view	<input type="checkbox"/>
F: Additional views	<b>Optional</b> Show outside of lab, any non-lab office space, etc.	<input type="checkbox"/>