ISTA PROTOCOL CHANGE JUSTIFICATION Rev. 12/8/06

This form is to be completed after an "ISTA Protocol Change Request" (PCR) has passed a preliminary vote of the Technical Council. **Attach the approved PCR to this form**.

It is not necessary to complete all sections of this form, only those deemed appropriate by the Council.

This form only relates to suggested *technical* changes to an existing Test Procedure or Project. Editorial changes are acted upon directly by the appropriate Protocol Action Group Chair or Technical Council Chair and Protocol Coordinator after submission of a PCR form in accordance with the "Administrative Guide for the ISTA Test Protocol Program".

Modification of: ISTA Procedure 3A	Version Date: 2006	Revision Date:
Submitted by: Kipp; suggested by Nyce, McDavid	Submittal Date: December 8, 2006	
Company: ISTA, UPS, Sauder	E-Mail: bkipp@ista.org; rnyce@sauder.com; pmcdavid@ups.com	
_x_Shipper __Shipper Lab __Carrier _x_Carrier Lab __Supplier __Supplier Lab __Independent Test Lab		

SPECIFIC DETAILS OF THE PROPOSED CHANGE

Test Blocks Affected, Additional Testing, Changes in: Test Parameters, Fixturing, Orientations, etc.:

Add a second series of free-fall drops for flat and elongated packages, similar to the free-fall drops for Standard and Small packages. For drop 17, impact face 2 or face 4.

This drop series would be *in addition to* all the tests currently required for flat and elongated packages. The change would essentially be implemented by just checking the "Flat" and "Elongated" checkboxes in Test Block 8 and specifying drop 17 on face 2 or 4, and by modifying the Test Sequence section on page 5.

The Test Sequence (page 5) for Flats and Longs would be: Preconditioning, Conditioning (optional), First Drops, Vibration, Vibration with Vacuum (optional), Second Drops (added), Rotational Edge Drops, Full Rotational Flat Drops, Hazard Impact (for flats only), Bridge Impact (for longs only).

VERIFICATION OF NEED FOR CHANGE

Lab Testing Experience, Correlation with Actual Shipping Experience, etc.:

Labs have reported non-correlation with field performance using the current Procedure for longs and flats, improved correlation when using the suggested change.

See pages 3 and 4 for details.

PROPOSED VALIDATION OF SUGGESTED CHANGE

Lab Trials, Other Test Protocols, etc.:

See pages 3 and 4.

IMPACTS OF THE CHANGE

Any Changes In Test Equipment Or Apparatus Required?

No

Any Synchronization With Other ISTA Tests Required?

Procedures 2D and 2E should probably be reviewed relative to this change.
Any changes made to 3A should be incorporated into the appropriate portion of 4AB.

Any Disadvantages Related To This Change Which Might Impact ISTA Members?

More testing, but that's the price to pay for improved correlation.

Contact ISTA Headquarters for any additional information or support
1400 Abbott Road, Suite 160
East Lansing, MI 48823-1900
Ph. 517.333.3437 Fax 517.333.3813
www.ista.org mailto:ista@ista.org

VERIFICATION AND VALIDATION OF SUGGESTED CHANGE

Excerpts of information from Patrick McDavid of the UPS lab in Addison:

[Below] are some examples of products that pass that current ISTA 3A Flat and Elongated sequences and are still having problems in the field and/or fail when the second drop sequence is added.

For all these products it is typically the same issue. The first set of impacts causes fatigue and damage to the packaging materials but does not cause damage to the product. Adding the second set of drops will resubject points with diminished protection to damage causing shock. It will also subject other damage prone orientations to shock that were missed during the first set. Another failure mode that is sometimes missed without the second set of drops is when the flaps of the box open or the corrugated splits.

I went through our testing database and tried to find as many [test] examples as possible... I would say I captured about 60%-70% of these items in our system. This is history from 2004 to now...

Flat:
- Radiators - 18 total from 12 customers
- Framed Art with Glass - 64 total from 22 customers
- Metal Signs and Panels - ???
- Knocked-Down (RTA) Furniture - 33 total from 6 customers

Elongated:
- Fluorescent Light Bulbs - 53 total from 23 customers
- Projection Screens - 17 total from 12 customers
- Mini Blinds - 50 total from 12 customers

We have been adding the second set [of drops] (when we can) for about 18 months. Not all the tests listed above have gone through both sets of sequences (standard and elongated or flat). [We do not have a] big list of customers that are willing to submit pairs of product for us to put through two different tests. We do have some customers that when we explain the situation, they allow us to… The customers that we have worked with have come to us and said that after we did the initial test, they are still having issues and are frustrated. We then asked them to resubmit so we could run the full sequence. We covered the costs of the retest just so we could get the data...

We started to see correlation when the dimensions of the sample were such that it would just fit into the standard category. It may look like a flat or an elongated, but when you did the math it actually fell into the standard package category and we could legally run those sequences. For example, we would have one customer submit multiple items for testing and most of them would fall into the flat category, but then one or two of the samples would fall into the standard. [Those] items failed because we… [ran] … a different test… After that we would look for customers willing to work with us to fix the problem… As you know we have access to our customers' shipping history (volume and damages) and can look at a product we know is having issues in the field but will pass 3A. Most of the data that I have is that sort.

When we were able, adding the second set of drops was all that we did. We never increased the height or changed the order. Pretty much saw immediate correlation when that was added. We would see the damage that was expected. Have not seen any problems with this yet.

Excerpts of information from Richard Nyce of Sauder Woodworking:

I can… add [information about a]… unit that passed 3A testing twice in our lab and a third test at UPS. The field data continued to show a high failure rate. When we tested using the added drop sequence the package failed… It was a flat package (as most of ours are). I have been testing to the new procedure since that time.