

ISTA 1 Series
Non-
Simulation
Integrity
Performance
Test
Procedure

VERSION
DATE
Last
TECHNICAL
Change:
MARCH
2014

Last
EDITORIAL
Change:
JANUARY
2016

For complete
listing of
Procedure
Changes and
Version Dates
go to
www.ista.org

Preface

ISTA, Distributing Confidence, Worldwide™

ISTA 1 Series are the most basic category of performance tests.

-)] They challenge the capability of the package and product to withstand transport hazards, but
-)] They are not simulations of actual transport hazards, and
-)] Do not necessarily comply with carrier packaging regulations.

When properly applied, ISTA procedures will provide tangible benefits of:

-)] Shortened packaged development time and confidence in product launch
-)] Protection of products and profits with reduced damage and product loss
-)] Economically balanced distribution costs
-)] Customer satisfaction and continued business.

There are three sections: Overview, Testing and Report

-)] Overview provides the general knowledge required before going into the testing laboratory and
-)] Testing presents the specific instructions to do the testing in the laboratory and
-)] Report indicates what data shall be recorded to submit a test report to ISTA.

Two systems of weights and measures are presented in ISTA test procedures. They are the English system (Inch-Pound) and the international system SI (Metric). Inch-Pound units are shown first with Metric units in brackets, except in some tables where they are shown separately.

-)] Either system may be used as the unit of measure (standard units), but
-)] The standard units chosen shall be used consistently throughout the procedure.
-)] Units are converted to two significant figures and
-)] Not exact equivalents.

VERY IMPORTANT:

The entire document shall be read and understood before proceeding with a test.

OVERVIEW OF PROCEDURE 1A

Test Procedure 1A is an integrity test for individual packaged-products.

-)] It can be used to evaluate the performance of a packaged-product.
-)] It can be used to compare relative performance of package and product design alternatives.
-)] The package and product are considered together and not separately.
-)] Some conditions of transit, such as moisture, pressure or unusual handling, may not be covered.

Other ISTA Procedures may be appropriate for different conditions or to meet different objectives.

Specific suggestions:

-)] To use random vibration instead of fixed displacement vibration, use ISTA Test Procedure 1G and not 1A.
-)] For packaged-products where a minimum compression value should be tested, use ISTA Test Procedure 1C.
-)] For packaged-products intended for international distribution consider ISTA Partial-Simulation Performance Test Procedure 2A.
-)] For packaged-products that may be transported in a small parcel delivery system consider ISTA General Simulation Performance Test Procedure 3A.

Refer to Guidelines for Selecting and Using ISTA Procedures and Projects for additional information.

ISTA 1 系列
非模拟完整
性能测试
程序

版本日期
最近技术
变更：
2014年3月

最后编辑
变更：
2016年1
月

程序变更及
版本日期完
整列表
访问 www.ista.org

序言

ISTA，全球分销信心™

ISTA 1系列是性能测试中最基础的类别。

- ） 他们质疑包装和产品能否承受运输危害，**但是**
- ） 它们不是对实际运输危险的模拟，**且**
- ） 未必符合承运人包装规定。

若正确实施，ISTA 程序将带来以下切实效益：

- ） 缩短包装开发时间并增强产品上市信心
- ） 降低损害与产品损失，保障产品及利润
- ） 经济均衡分配成本
- ） 客户满意度与业务持续性。

共分为三个部分：概述、测试与报告

- ） **概述**提供了进入测试实验室前所需的通用知识和
- ） **测试**提供了在实验室中进行测试的具体说明**和**
- ） **报告**指明了应记录哪些数据以提交测试报告至 ISTA。

ISTA 测试程序中展示了两种度量衡系统：英制（英尺-磅）和国际单位制（SI）。英制单位首先列出，括号内为公制单位，但部分表格中会单独列出。

- ） 任何一种系统都可以作为计量单位（标准单位），**但是**
- ） 所选用的标准单位应在整个操作过程中保持一致使用。
- ） 单位转换为两位有效数字**和**
- ） 非完全等效

非常重要：

在进行检测前，应完整阅读并理解该文件内容。

程序概述 1A

测试程序1A是对单个包装产品进行的完整性测试。

- ） 可用于评估包装产品的性能。
- ） 该方法可用于比较包装与产品设计方案的性能。
- ） 该包装与产品应作为整体而非分开考虑。
- ） 某些运输条件（如湿度、压力或异常操作）可能不在承保范围内。

其他 ISTA 程序可能适用于不同情况或实现不同目标。

具体建议：

- ） 若需采用随机振动替代固定位移振动，请使用 ISTA 测试程序1G而非1A。
 - ） 对于需测试最小压缩值的包装产品，应采用 ISTA 测试程序1C。
 - ） 对于拟用于国际分销的包装产品，应考虑 ISTA 部分模拟性能测试程序2A。
 - ） 对于可能通过小型包裹递送系统运输的包装产品，应考虑 ISTA 通用模拟性能测试程序3A。
- 有关更多信息，请参阅《*选择和使用 ISTA 程序和项目指南*》。

Scope

Test Procedure 1A covers testing of individual packaged-products weighing 150 lb (68 kg) or less when prepared for shipment.

EXCEPTION:

Individual packaged-products on a visible skid or pallet and that weigh more than 100 lb (45 kg) may be tested according to Test Procedure 1B or 1E.

Product
Damage
Tolerance and
Package
Degradation
Allowance

The shipper shall determine the following prior to testing:

- what constitutes damage to the product and
- what damage tolerance level is allowable, if any, and
- the correct methodology to determine product condition at the conclusion of the test and
- the acceptable package condition at the conclusion of the test.

For additional information on this determination process refer to Guidelines for Selecting and Using ISTA Procedures and Projects.

Samples

Samples should be the untested actual package and product, but if one or both are not available, the substitutes shall be as identical as possible to actual items.

Number of samples required:

- One sample is required for the tests in this procedure.

Replicate Testing Recommended:

To permit an adequate determination of representative performance of the packaged-product, ISTA:

- Requires the procedure to be performed one time, but
- Recommends performing the procedure five or more times using new samples with each test.

NOTE:

Packages that have already been subjected to the rigors of transportation cannot be assumed to represent standard conditions. In order to insure testing in perfect condition, products and packages shipped to certified laboratories for testing must be:

- over-packaged for shipment to the laboratory or
- repackaged in new packaging at the laboratory.

Test
Sequence

The tests shall be performed on each test sample in the sequence indicated in the following table:

Sequence #	Test Category	Test Type	Test Level	For ISTA Certification
1	Atmospheric Preconditioning	Temperature and Humidity	Ambient	Required
2	Vibration	Fixed Displacement	1 in (25mm) peak-to-peak at a frequency to be determined	Required
3	Shock (Alternative methods allowed – select one test type)	Drop	Height varies with packaged-product weight	Required
		Incline-Impact (Conbur)	Impact Velocity varies with packaged-product weight	
		Horizontal Impact	Impact Velocity varies with packaged-product weight	

范围

测试程序1A涵盖对单个包装产品进行测试，这些产品在准备运输时重量不超过150磅（68公斤）。

例外：

重量超过100磅（45公斤）且装在可见滑轨或托盘上的单个包装产品，可依据测试程序1B或1E进行检测。

**Product
Damage
Tolerance 和
Package
Degradation
Allowance**

托运方应在测试前确定以下事项：

-)] 什么构成对产品的损害和
-)] 允许的耐损等级是多少，如果有，和
-)] 确定测试结束时产品状态的正确方法和
-)] 测试结束时的可接受包装条件。

有关此判定过程的更多信息，请参阅*选择和使用 ISTA 程序和项目的指南*。

样品

样本应为未经测试的实际包装及产品，若无法提供其中一项或两项，则替代品应尽可能与实际物品保持一致。

所需样本数量：

-)] 本程序测试需使用一个样本。

建议重复检测：

为确保对包装产品代表性性能的充分判定，ISTA：

-)] 要求手术只做一次，**但是**
-)] 建议每次使用新样本时重复该操作五次或以上。

注：

已经历运输严苛条件的包装不能被视为代表标准条件。为确保在完美条件下进行测试，运往认证实验室进行检测的产品及包装必须满足以下要求：

-)] 为运输至实验室而过度包装**或**
-)] 在实验室中重新包装于新包装内。

应按下表所示顺序对每个测试样本进行检测：

**测
试
序
列**

序列编号	测试类别	测试类型	测试级别	ISTA 认证
1	大气预处理	温度和湿度	周围的	必需
2	振动	固定位移	1英寸（25毫米）峰峰值，频率待定	必需
3	休克（允许使用替代方法——选择一种视力检查表	下拉	身高随包装产品重量	必需
		斜坡-冲击（康伯）	冲击速度随包装产品重量变化	
		水平冲击	冲击速度随包装产品重量变化	

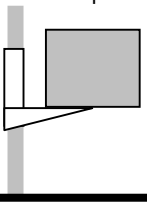
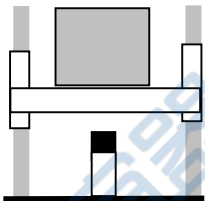

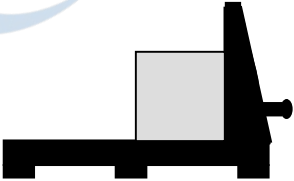
Equipment
Required
Vibration

Fixed Displacement Vibration Test:

- J Vibration Test System with a 1 in (25 mm) fixed or controlled displacement complying with Method A1 or A2 of the apparatus section of ASTM D 999.
Rotary or vertical linear motion of the platform is acceptable.
- J Metal shim 0.06 in (1.5 mm), thick approximately 2 in (50 mm) wide and at a convenient length.
- J Tachometer or suitable indicator for determining vibration frequency in cycles per second (Hz) or cycles per minute (CPM).
- J Automatic timer or stopwatch.

Equipment
Required
Shock

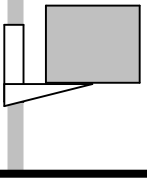
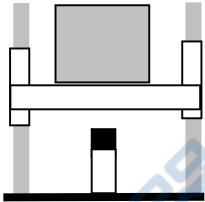


The following alternatives are acceptable for the equipment required for the Shock Test:

Type of Shock Test	Type of Equipment	In compliance with the apparatus section of ...
Drop Test	Free fall drop tester 	ASTM D 5276
Vertical Shock Test	Shock test machine 	ASTM D 5487
Alternative Incline Test	Incline impact tester (conbur) 	ASTM D 880
Alternative Horizontal Test	Horizontal impact test system 	ASTM D 4003

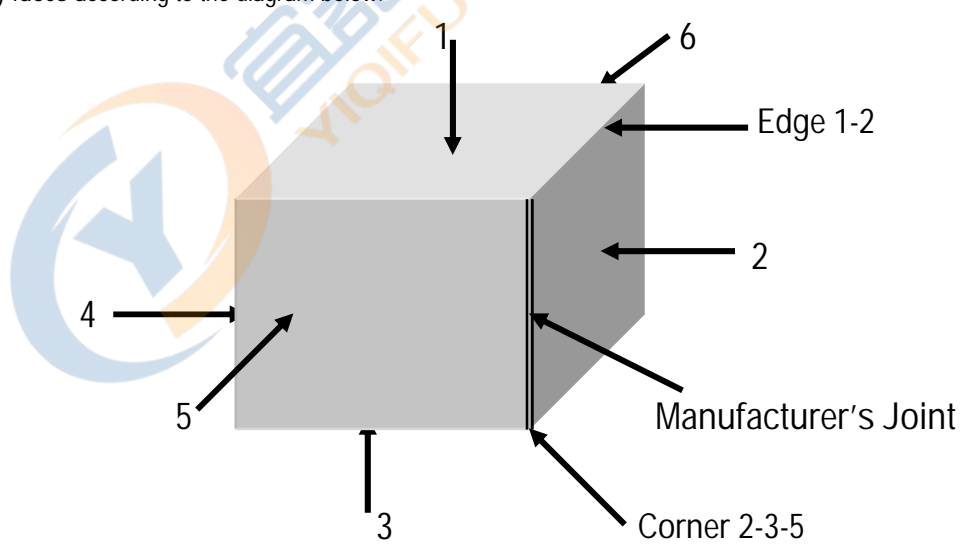
固定位移振动试验

- ⌋ 符合ASTM D 999装置章节A1或A2方法的振动测试系统，配备1英寸（25毫米）固定或可控位移装置。
平台的旋转或垂直直线运动是可接受的。
- ⌋ 金属垫片，厚度约2英寸（50毫米），宽度约1.5毫米（0.06英寸），长度可根据需求定制。
- ⌋ 转速表或适用于测定振动频率的指示器，单位为每秒周期数（Hz）或每分钟周期数（CPM）。
- ⌋ 自动计时器或秒表。

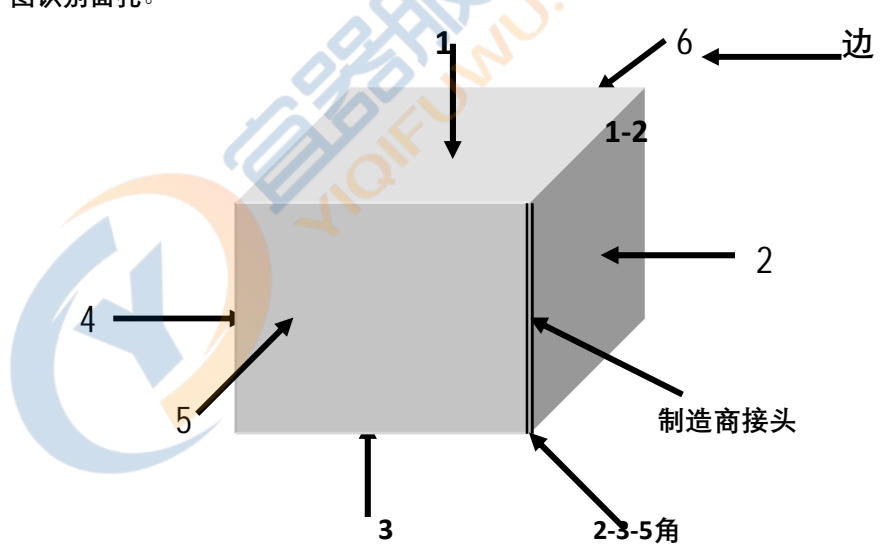
对于冲击测试所需的设备，以下替代方案可接受：

冲击试验类型	设备类型	遵照	装置剖面
跌落试验	自由坠落试验器 		ASTM D5276
垂直冲击试验	冲击试验机 		ASTM D5487
替代斜坡试验	斜面冲击试验机（康伯） 		ASTM D880
替代水平试验	水平冲击试验系统 		ASTM D4003

Prior to beginning the tests identify the faces, edges and corners according to the procedure below.

Step	Action
1	Place the packaged-product in its intended shipping position as determined by shipper. If the shipping position can be variable, place the packaged-product so that the primary shipping label location is on the top face.
2	Does the packaged-product have only six faces (2 sides, 2 ends, top and bottom)? <input type="checkbox"/> If Yes, then go to Step 5. <input type="checkbox"/> If No, continue to next Step.
3	Develop a method to identify each face, edge and corner and document with a diagram.
4	Go to next page for further Before You Begin details.
5	Is the package a corrugated container? <input type="checkbox"/> If Yes, continue to next Step. <input type="checkbox"/> If No, then go to Step 8.
6	Does the package have a manufacturer's joint connecting a side and an end face? <input type="checkbox"/> If Yes, continue to next Step. <input type="checkbox"/> If No, then go to Step 8.
7	Turn the packaged-product so that you are looking directly at a face with the manufacturer's joint on the observer's right and go to Step 9.
8	Position one of the smallest width faces of the packaged-product directly in front of you.
9	Identify faces according to the diagram below. 
10	Identify edges using the numbers of the two faces forming that edge. Example: Edge 1-2 is the edge formed by face 1 and face 2 of the packaged-product.
11	Identify corners using the numbers of the three faces that meet to form that corner. Example: Corner 2-3-5 is the corner formed by face 2, face 3, and face 5 of the packaged-product.
12	Go to next page for further Before You Begin details.

在开始测试前，请按照以下步骤识别面部、边缘和角落。

步骤	行动
1	将包装产品置于发货人指定的预期运输位置。若运输位置可变，则应将包装产品放置于主要运输标签位于顶面的位置。
2	该包装产品是否仅具有六个面（2个侧面、2个端面、顶部和底部）？ <input type="checkbox"/> If是，则转至步骤5。 <input type="checkbox"/> If否，继续下一步。
3	开发一种方法，用于识别每个面、边和角，并以图表形式记录。
4	请转至下一页获取更多“开始前须知”详情。
5	这个包裹是瓦楞纸箱吗？ <input type="checkbox"/> If是，继续下一步。 <input type="checkbox"/> If不，则转至步骤8。
6	该包装是否具有制造商标识？连接侧面与端面的接头是否已安装？ <input type="checkbox"/> If是，继续下一步。 <input type="checkbox"/> If否，则转至步骤8。
7	将包装产品旋转，使观察者正视制造商的接合面，调整至右侧，然后进入步骤9。
8	将包装产品最小宽度面之一直接置于眼前。
9	根据下图识别面孔。 
10	根据构成该边的两个面的编号来识别边。 示例：边缘1-2是由包装产品表面1和表面2形成的边缘。
11	通过三个面的数字来识别角落。 示例：角2-3-5是由包装产品表面2、表面3和表面5形成的角。
12	请转至下一页获取更多“开始前须知”详情。

Weight and
Size
Measurement

You shall know the packaged-product's:

-) gross weight in pounds (kg), and
-) outside dimensions of Length, Width and Height (L x W x H) in inches (mm or m)

Before You
Begin
Atmospheric
Conditioning

Required Preconditioning:

The packaged-product shall be preconditioned to laboratory ambient temperature and humidity for twelve (12) hours prior to testing.

Before You
Begin
Vibration
Testing

CAUTION:

A restraining device or devices shall be used with the vibration test system to:

-) Prevent the test specimen from moving off the platform and
-) Maintain test orientation of the packaged-product, but
-) The device or devices shall not restrict the vertical motion of the test specimen during the test.

Familiarity with the following formula is required to calculate the test duration after the frequency required to bounce the packaged-product is determined in the Vibration Test Block:

$$\text{Test Duration in Minutes} = \frac{14,200 \text{ Vibratory Impacts}}{\text{Cycles Per Minute (CPM) or [Cycles Per Second (Hz) x 60]}}$$

The chart below shows example Test Durations calculated for several frequencies.

CPM	Hz	Test Duration in Minutes
150	2.5	95
180	3.0	79
210	3.5	68
240	4.0	60
270	4.5	53
300	5.0	48

Before You
Begin
Shock Testing

The test drop height varies with the weight of the packaged-product. Find the weight of the packaged-product in the following chart to determine a drop height or an equivalent impact velocity or velocity change to be used for a substituted drop:

Packaged-Product Weight				Drop Height			Impact Velocity	
Equal to or greater than		But Less than		Free Fall			Incline or Horizontal	
lb	kg	lb	kg	in.	mm		ft/s	m/s
0	0	21	10	30	760		13	3.9
21	10	41	19	24	610		11	3.5
41	19	61	28	18	460		10	3.0
61	28	100	45	12	310		8.0	2.5
100	45	150	68	8	200		6.6	2.0

-) The test method requires the packaged-product to be dropped in several different package orientations.
-) A drop test must be performed in all required orientations where dropping the packaged-product is practical.
-) If dropping in a required orientation is not practical an equivalent incline or horizontal test can be substituted for that orientation.
-) When using impact velocity or velocity change, if any velocity in a Test Sequence is below the required minimum level, that sequence event must be repeated until the test velocity meets the minimum.

体重和尺寸
测量

在开始大气
调节
之前

振动试验
前须
知

您应了解该包装产品的：

- ） 重量（磅/千克），和
- ） 长度、宽度和高度（L x W x H）的外部尺寸（单位：英寸、毫米或米）

必要预处理：

包装产品应进行测试。 预先处理 向 实验室 环境温度 和 湿度 十二个 (12) 小时 在...之前的

谨慎

振动测试系统应配备约束装置，以实现以下目的：

- ） 防止试件移出平台 **和**
- ） 保持包装产品的测试方向， **但**
- ） 测试过程中，该装置不得限制试样的垂直运动。

需熟悉以下公式，以便在振动测试模块中确定包装产品所需的弹跳频率后，计算测试持续时间：

$$\text{测试持续时间 (分钟)} = \frac{14,200 \text{ 振动冲击}}{\text{每分钟循环数 (CPM) 或 [每秒循环数 (Hz) } \times 60]}$$

下图显示了为几种频率计算的示例测试持续时间。

呼叫/分	薄雾	测试持续时间 (分钟)
150	2.5	95
180	3.0	79
210	3.5	68
240	4.0	60
270	4.5	53
300	5.0	48

在你之前
冲击
试验开始

测试跌落高度随包装产品重量变化。通过下表查找包装产品重量，以确定用于替代跌落的跌落高度或等效冲击速度或速度变化：

包装产品重量				跌落高度		冲击速度	
等于或大于		但不足		自由坠落		倾斜或水平	
磅	千克	磅	千克	在	毫米	ft/s	m/s
0	0	21	10	30	760	13	3.9
21	10	41	19	24	610	11	3.5
41	19	61	28	18	460	10	3.0
61	28	100	45	12	310	8.0	2.5
100	45	150	68	8	200	6.6	2.0

- ） 该测试方法要求将包装产品以多种不同包装方向进行跌落测试。
- ） 在所有可行的包装产品跌落测试方向中，必须进行跌落测试。
- ） 若无法进行规定的体位下降测试，则可采用等效的倾斜或水平测试替代该体位。
- ） 在使用冲击速度或速度变化时，若测试序列中的任何速度低于所需最低水平，则必须重复该序列事件，直至测试速度达到最低要求。

TEST BLOCK 1
Atmospheric
Conditioning

The test blocks that follow contain tables that indicate the required steps for each test in the procedure.

TEMPERATURE AND HUMIDITY	
Step	Action
1	PRE-CONDITIONING: The packaged-product should be stored at laboratory ambient temperature and humidity for twelve (12) hours prior to testing.
2	Record the ambient laboratory temperature and humidity when testing starts.
3	At the end of testing record temperature and humidity.
4	Go to TEST BLOCK 2 (Vibration).

TEST BLOCK 2
Vibration

VIBRATION –FIXED DISPLACEMENT	
Step	Action
1	Put the packaged-product on the vibration table so that face 3 rests on the platform.
2	Start the vibration system to vibrate at 1.0 in (25 mm) total displacement at the machine's lowest frequency.
3	Maintain a fixed displacement at 1 inch (25 mm) and slowly increase the frequency (speed) of the vibration table until the packaged-product begins to momentarily leave the surface of the platform.
4	Can a metal shim be intermittently moved between the bottom of the longest dimension of the packaged-product and the surface of the platform? <input type="checkbox"/> If Yes, hold that frequency and then continue to the next Step (Step 5). <input type="checkbox"/> If No, then slowly increase the frequency until the requirement of this Step (Step 4) is met, and hold that vibration frequency.
5	Determine the test duration in minutes using the formula indicated in Before You Begin Vibration Testing and the CPM or Hz frequency identified in Step 4.
6	Begin timing the vibration test duration.
7	Are you using a vertical linear motion on the vibration system? <input type="checkbox"/> If Yes, then go to Step 12. <input type="checkbox"/> If No, then continue with the next Step.
8	Stop the vibration test after completion of one-half (1/2) of the total minutes of test duration and perform the appropriate action as indicated in the table below:
	IF a single 90° horizontal rotation is...
	Possible
	Not practical because of the size of the packaged-product or the stability of the packaged-product.
	THEN perform a horizontal rotation of ...
	90° as the specimen rests on the platform.
	180° as the specimen rests on the platform.
9	Re-start the vibration system to vibrate at 1.0 in (25 mm) total displacement at the machine's lowest frequency.
10	Maintain a fixed displacement at 1 inch (25 mm) and slowly increase the frequency (speed) of the vibration table until the packaged-product begins to momentarily leave the surface of the platform.
11	Can a metal shim be intermittently moved between the bottom of the longest dimension of the packaged-product and the surface of the platform? <input type="checkbox"/> If Yes, hold that frequency and then continue to the next Step (Step 12). <input type="checkbox"/> If No, then slowly increase the frequency until the requirement of this Step (Step 11) is met, and hold that vibration frequency.
12	Resume or continue timing the test, and complete the second half of the vibration duration.
13	Vibration testing is now complete. Go to TEST BLOCK 3 (Shock).

后续测试模块包含表格，列明流程中各项测试所需的步骤

温度与湿度	
步骤	行动
1	预处理：包装产品应在检测前的十二（12）小时内储存于实验室环境温度和湿度下。
2	测试开始时记录实验室环境温度与湿度。
3	测试结束时记录温度和湿度。
4	转至测试模块2（振动测试）。

振动-固定位移							
步骤	行动						
1	将包装产品置于振动台上，使面3接触平台。						
2	启动振动系统，使机器在最低频率下以1.0英寸（25毫米）的总位移进行振动。						
3	将位移固定在1英寸（25毫米）处，缓慢增加振动台的频率（速度），直至包装产品开始短暂离开平台表面。						
4	金属垫片能否在包装产品最长边的底部与平台表面之间进行间歇性移动？ <input type="checkbox"/> 若是，则保持该频率，然后继续执行下一步（步骤5）。 <input type="checkbox"/> 若否，则缓慢增加频率直至满足本步骤（步骤4）的要求，并保持该振动频率。						
5	根据《振动测试前准备》中指定的公式及步骤4中确定的CPM或Hz频率，计算测试持续时间（以分钟为单位）。						
6	开始计时振动测试持续时间。						
7	振动系统是否采用垂直线性运动？ <input type="checkbox"/> 如果是，则转至步骤12。 <input type="checkbox"/> 如果否，则继续执行下一步。						
8	在完成振动试验总时长的一半（1/2）后停止振动试验，并按照下表所示采取相应措施：						
	<table border="1"> <tr> <td>若单次 90° 水平旋转为...</td> <td>随后对...进行水平旋转</td> </tr> <tr> <td>可能</td> <td>90° 作为标本置于平台上。</td> </tr> <tr> <td>因包装产品尺寸或包装产品稳定性而不切合实际。</td> <td>180° 作为标本置于平台上。</td> </tr> </table>	若单次 90° 水平旋转为...	随后对...进行水平旋转	可能	90° 作为标本置于平台上。	因包装产品尺寸或包装产品稳定性而不切合实际。	180° 作为标本置于平台上。
若单次 90° 水平旋转为...	随后对...进行水平旋转						
可能	90° 作为标本置于平台上。						
因包装产品尺寸或包装产品稳定性而不切合实际。	180° 作为标本置于平台上。						
9	重启振动系统，使其在机器最低频率下以1.0英寸（25毫米）的总位移进行振动。						
10	将位移固定在1英寸（25毫米）处，缓慢增加振动台的频率（速度），直至包装产品开始短暂离开平台表面。						
11	金属垫片能否在包装产品最长边的底部与平台表面之间进行间歇性移动？ <input type="checkbox"/> 若是，则保持该频率，随后继续执行下一步（步骤12）。 <input type="checkbox"/> 若否，则缓慢增加频率直至满足本步骤（步骤11）的要求，并保持该振动频率。						
12	恢复或继续计时测试，并完成振动持续时间的后半段。						
13	振动测试现已完成。请转至测试模块3（冲击测试）。						

SHOCK - DROP			
Step	Action		
1	Determine the method(s) of test and the required drop height or impact velocity in Before You Begin Shock Testing.		
2	Do you have a packaged-product with only 6 faces as identified in Face, Edge and Corner Identification? <input type="checkbox"/> If Yes, continue with the next Step. <input type="checkbox"/> If No, then go to Step 6.		
3	Test the packaged-product according to the method(s) and level(s) determined in Step 1. Follow the sequence in the table below.		
4	Sequence #	Orientation	Specific face, edge or corner
	1	Corner	most fragile face-3 corner, if not known, test 2-3-5
	2	Edge	shortest edge radiating from the corner tested
	3	Edge	next longest edge radiating from the corner tested
	4	Edge	longest edge radiating from the corner tested
	5	Face	one of the smallest faces
	6	Face	opposite small face
	7	Face	one of the medium faces
	8	Face	opposite medium face
	9	Face	one of the largest faces
10	Face	opposite large face	
5	All testing is now complete. Go to the Reporting an ISTA Test section at the end of this Procedure.		
6	Select a bottom face corner to replace the corner required in Step 4 Sequence 1 to begin the test.		
7	Identify the edges of the packaged-product that meet the Step 4 Sequence 2 through 4 requirements.		
8	Select any 6 faces to replace the faces required in Step 4 Sequence 5 through 10.		
9	Using the corner, edges and faces from Steps 6 through 8 go to Step 3 and proceed.		
10	All testing is now complete. Go to the Reporting an ISTA Test section at the end of this Procedure.		

程序 1A 测试序列

休克-跌倒			
步骤	行动		
1	在开始冲击测试前，确定测试方法及所需的跌落高度或冲击速度。		
2	您是否拥有一个仅具有6个面的包装产品，如在面、边和角识别中所确定的那样？ J 如果是，则继续执行下一步。 J 如果否，则转至步骤6。		
3	根据步骤1中确定的方法和级别对包装产品进行检测。按照下表所示顺序操作。		
4	序列编号	定向	特定面部、边缘或角
	1	角落	最脆弱的面-3角，若未知，则测试2-3-5
	2	边	从测试角发出的最短边
	3	边	从测试角发出的次长边
	4	边	从测试角发出的最长边
	5	脸	最小面之一
	6	脸	对向小面
	7	脸	中面之一
	8	脸	对向介质面
	9	脸	最大面之一
10	脸	对向大面	
5	所有测试现已完成。请转至本操作规程末尾的 ISTA 测试报告部分。		
6	选择底部面角以替换步骤4序列1中所需的角，从而开始测试。		
7	识别符合步骤4序列2至4要求的包装产品边缘。		
8	选择任意6个面以替换步骤4序列5至10所需的面。		
9	使用步骤6至8中的角、边和面，转至步骤3并继续进行。		
10	所有测试现已完成。请转至本操作规程末尾的 ISTA 测试报告部分。		

ISTA Test Report Forms may be downloaded by members through the online ISTA Member Center (www.ista.org/members/). Custom forms are also acceptable, but information on an official ISTA Report Form is considered to be the minimum required for any test report submission and consideration. Test report forms should be submitted to ISTA Headquarters by mail, fax or electronically. Test reports should be detailed enough for accurate repeatability of the test.

The packaged-product has satisfactorily passed the test if, upon examination, it meets the Product Damage Tolerance and Package Degradation Allowance determined prior to testing.

ISTA Certified Testing Laboratories:

-) Should file a test report on all ISTA Test Procedures or Projects conducted.
-) Shall file a test report on all ISTA Test Procedures or Projects conducted to obtain Transit Tested Package Certification or Acknowledgement.

To submit a test report form:

-) Email to ista@ista.org
-) Mail to address shown below
-) Fax to +1 517-333-3813.

ISTA Transit Tested Program: Packaged-Product Certification

The ISTA Transit Tested Certification Mark as shown:

-) is a registered certification mark and
-) can only be printed on certified packages and
-) can only be used by license agreement and
-) by a Shipper member of the International Safe Transit Association.



When a Shipper member prints this certification mark on a packaged-product, with their manufacturer's license number, they are showing their customer, vendors and carriers that it has passed the requirements of ISTA preshipment testing.

To obtain initial certification of a packaged-product:

-) the product manufacturer must be a Shipper member of ISTA in good-standing and with a valid License Agreement on file
-) the testing laboratory must be a member of ISTA in good-standing and have a valid lab certification date
-) a test report must be submitted by the laboratory to ISTA Headquarters.

In order to maintain its certified status and eligibility for identification with the Transit Tested Certification Mark, each packaged-product must be re-tested whenever a change is made in the:

-) Product or
-) Process or
-) Package.

If corrugated packaging is used, it is recommended that the basis weights of the constituent papers/paperboards be determined after testing and documented to provide the best indicator of equivalence or change.

As a quality control procedure, packaged-products should be re-tested frequently, for example, yearly.

For additional information, refer to Guidelines for Selecting and Using ISTA Test Procedures and Projects.

ISTA Membership information is available at www.ista.org.

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ISTA 测试报告表可由会员通过在线 ISTA 会员中心 (www.ista.org/members/) 下载。可接受定制表格，但官方 ISTA 报告表上的信息被视为提交和审议测试报告的最低要求。测试报告表应通过邮件、传真或电子方式提交至 ISTA 总部。测试报告应足够详细，以确保测试的可重复性准确。

若经检查，包装产品符合测试前确定的产品损伤容限和包装降解容许值，则该包装产品已通过测试。

ISTA 认证检测实验室：

- 应提交所有 ISTA 测试程序或项目执行情况的测试报告。
- 应提交所有为获取运输测试合格证书或确认书而执行的 ISTA 测试程序或项目的测试报告。

提交检测报告表：

- 发送邮件至 ista@ista.org
- 发送至下方显示的地址
- 传真至 +1 517-333-3813。

ISTA 通过测试的程序：包装产品认证

如图所示的 ISTA 运输测试认证标志：

- 是一个注册认证标志和
- 只能打印在认证的包装上和
- 只能通过许可协议使用和
- 由国际安全运输协会的托运人会员



当托运人成员在包装产品上印制该认证标志并附上其制造商许可证号时，即向客户、供应商及承运人表明该产品已通过 ISTA 装运前检测要求。

为获取包装产品的初始认证：

- 产品制造商必须是 ISTA 的托运人会员，且信誉良好，并持有有效的许可证协议备案。
- 检测实验室必须是 ISTA 的正式成员，并持有有效的实验室认证证书
- 实验室必须向 ISTA 总部提交检测报告。

为维持其认证状态及获得“经运输测试认证标志”的资格，当以下任何一项发生变更时，每件包装产品必须重新进行测试：

- 产品或
- 处理或
- 包装。

若采用瓦楞纸包装，建议在测试后测定各组成纸张/纸板的基重，并记录以提供最佳等效性或变化指标。

作为质量控制程序，包装产品应定期复检，例如每年一次。

如需更多信息，请参阅《ISTA 测试程序与项目的选取与使用指南》。

ISTA 会员信息可在 www.ista.org 获取。

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