

KODIAK THERMAL TECHNOLOGIES, INC.

PACKAGE PERFORMANCE TESTING

- PER ISTA 7D -

of the R36 ATA Case

Report No. 111-07-0524A

Customer Information

Kodiak Thermal Technologies, Inc.

John Howe

2600 East Santa Gertrudis Avenue

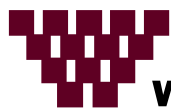
Kingsville, TX 78363

Purpose of Testing

The purpose of testing was to validate the ability of the R36 ATA Case to withstand impact and vibration hazards typically associated with the shipping and distribution environment. The package system was subjected to the testing outlined in the ISTA 7D Test Protocol. Individual test inputs are described in the table below:

Test Input	Standard Referenced
Impact Test (Drop Sequence No. 1)	ISTA 7D
Final Random Vibration	ISTA 7D
Impact Test (Drop Sequence No. 2)	ISTA 7D

The acceptance criteria are to be determined by Kodiak Thermal Technologies, Inc..



Product Information

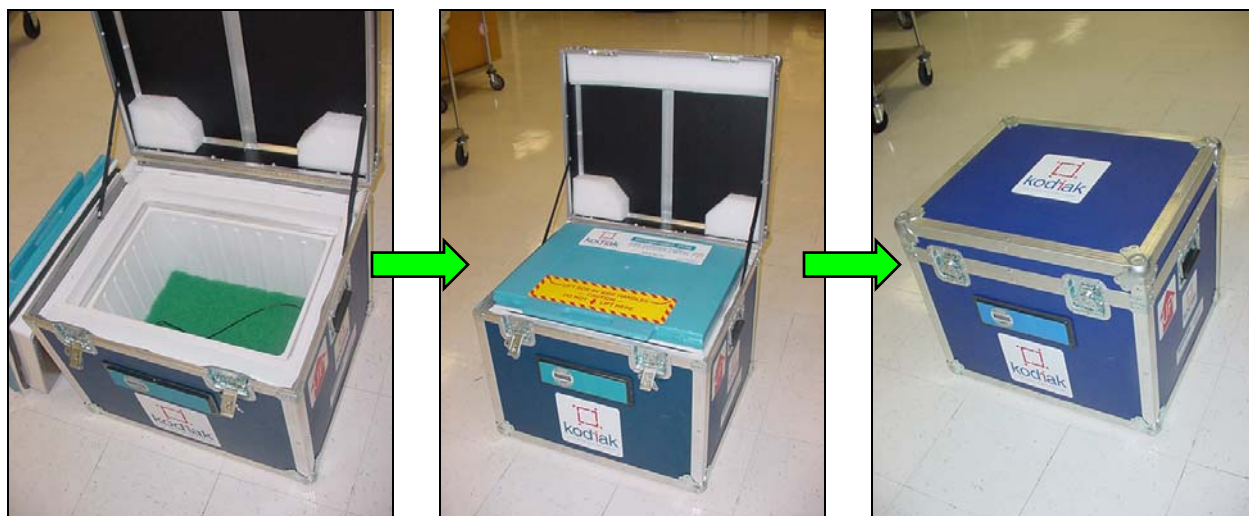
Product: R36 ATA Case
(designed for Cold Chain Shipping)
Interior Volume: 36-Litre (1.27 ft³)
Stock numbers: 100-00001 and 100-00002

External Description

Shipper style: ATA Case

Case Quantity	External Dimensions (in.)	Weight (lb)
1	24.5 x 21.0 x 21.0	70.8

Note: A 10-lb. bag of sand was evenly distributed inside the case along the base as to simulate product weight per request of the Kodiak Thermal Technologies, Inc. representative. The remaining space in the case was filled with bubble wrap in order to keep the sand from shifting during testing.

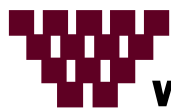


Laboratory Information

Test Engineer: Eric Lau
Test Dates: April 17, 2007
Westpak Laboratory: San Jose, California

Test Equipment and Instrumentation

Please refer to Appendix I



Test Descriptions

Impact Test (Drop Sequence No. 1)

Impact Number	Orientation	Drop Height (in.)
1	Base corner	12
2	Longest base edge	
3	Base Down	
4	Right Side Down	
5	Front End Down	



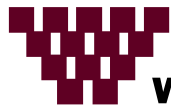
Initial Random Vibration

Frequency range: 1-200 Hz
 Vibration intensity: 1.15 G rms
 Total duration: 60 minutes

Frequency (Hz)	PSD (G ² /Hz)
1	0.0001
4	0.01
100	0.01
200	0.001

Orientation	Duration (min)
Base down	30
Top down	10
Right Side down	10
Front End down	10



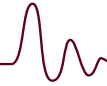
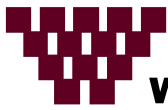


Test Descriptions (Continued)

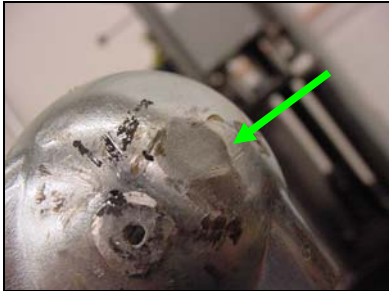

Impact Test (Drop Sequence No. 2)

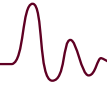
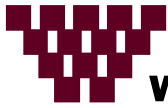
Impact Number	Orientation	Drop Height (in.)
1	Base corner	12
2	Longest base edge	
3	Base Down	
4	Left Side Down	
5	Back End Down	





Results and Observations

Test Input	Observations	Appendix
Impact Test (Drop Sequence No. 1)	<p>Minor denting was observed to the impacted corners of the ATA case. This is considered normal due to the nature of this test input. Please refer to the following photograph:</p>  <p style="text-align: center;">Minor Denting on Base Corner</p> <p>No changes were observed to the <i>ESCORT iLog</i> CPU display as a result of impact testing. Please refer to the following photograph:</p>  <p style="text-align: center;">ESCORT iLog CPU Display (Post Impact Testing)</p>	n/a
Initial Random Vibration	No changes were observed to the ATA case as a result of this test input.	II
Impact Test (Drop Sequence No. 2)	Additional minor denting was observed to the impacted corners of the case. This is considered normal due to the nature of this test input. No unusual damage was observed as a result of this test input.	n/a



Conclusions and Recommendations

One (1) R36 ATA Case was subjected to testing outlined in the ISTA 7D Test Protocol. Individual test inputs consisted of impact testing (drop sequence no. 1), random vibration, and impact testing (drop sequence no. 2).

All the physical damage sustained by the ATA case is considered normal due to the nature of the test inputs.

Following testing, the R36 ATA Case was returned to Kodiak Thermal Technologies, Inc. for further evaluation which results are not known to WESTPAK, Inc. at this time.

Pending functional testing of the unit, WESTPAK, Inc. recommends the use of this package system for use within the normal distribution environment.

There were no anomalies throughout the conduct of this test that would detract from the ability of **Kodiak Thermal Technologies, Inc.** from making reasonable judgments about the suitability of this package configuration for the R36 ATA Case.

WESTPAK is pleased to present this report to **Kodiak Thermal Technologies, Inc.** covering the package validation testing of the **R36 ATA Case**. The equipment used to conduct this testing has been recently calibrated and is known to be in good operating condition. In addition the test operator uses good laboratory practice at all times. Therefore, the data is considered accurate and reliable. However, there is no warranty expressed or implied with the submission of this report, and **Kodiak Thermal Technologies, Inc.** assumes all liability for use of the data contained herein.

Respectfully submitted,
WESTPAK, INCORPORATED

Eric Lau
April 17, 2007

Reviewed By

Hugh Davis
April 19th, 2007

APPENDIX I

EQUIPMENT and INSTRUMENTATION

Instrumentation & Equipment	Westpak No.	Model No.	Calibration Date
Kistler Coupler	150	5126A	2/22/2007
MTS Electro-Hydraulic Vibration Test Machine	448	204.61	Not Required
Dytran Accelerometer	521	3100B	1/8/2007
LAB Drop Tester	530	AD-500	Not Required
Data Physics Vibration Controller	567	DP550	1/25/2007

Note: All calibration conducted annually on instrumentation only

APPENDIX II

RANDOM VIBRATION TEST DATA

Kodiak: 36-Litre ATA Case (1 case tested)
ISTA 7D, Random Vibration
2-200 Hz at 1.15 G rms

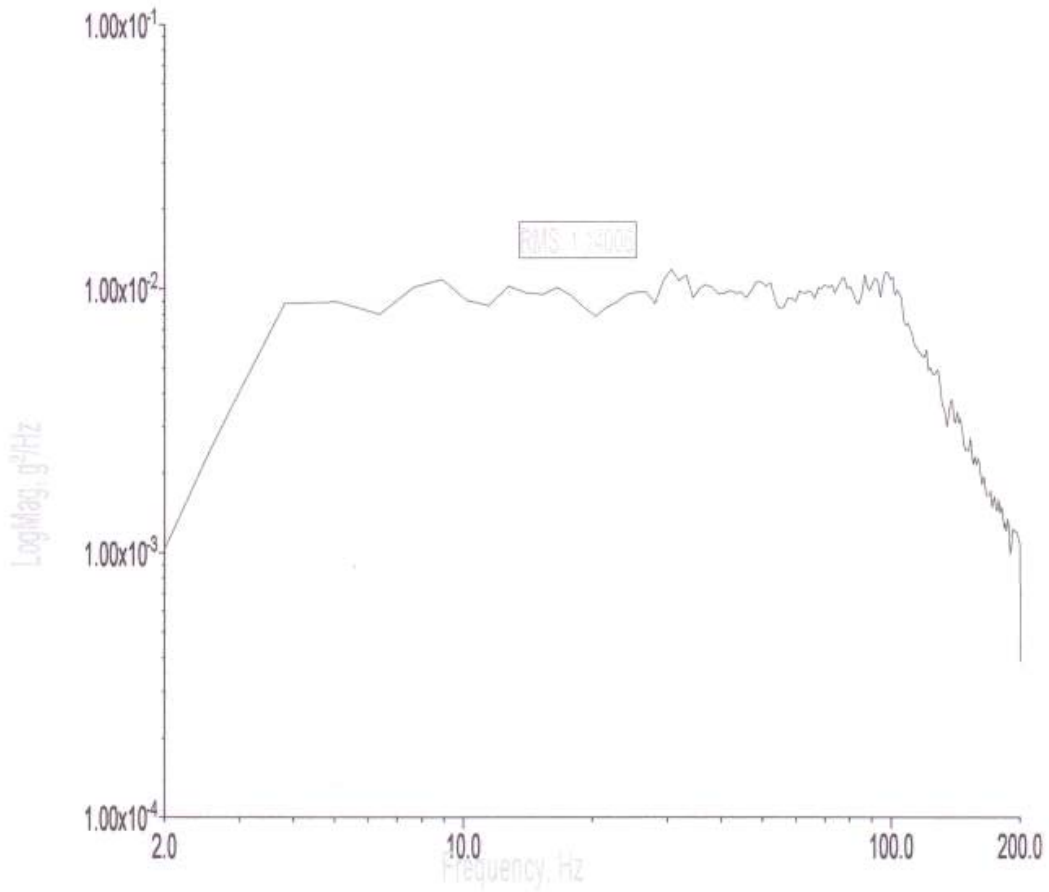
Remaining: 0:00:00
Demand: 1.15 g

At Level: 0:30:00
Actual: 1.14 g

Elapsed: 0:30:21
Drive: 0.6366 V

Level: 0.00 dB
Status: Ready

Control/Measurement



Orientation: Base Down (30 Minutes)
Test Engineer: Eric Lau
Westpak Report No. 111-07-0524A

EL
4/17/07

Kodiak: 36-Litre ATA Case (1 case tested)
ISTA 7D, Random Vibration
2-200 Hz at 1.15 G rms

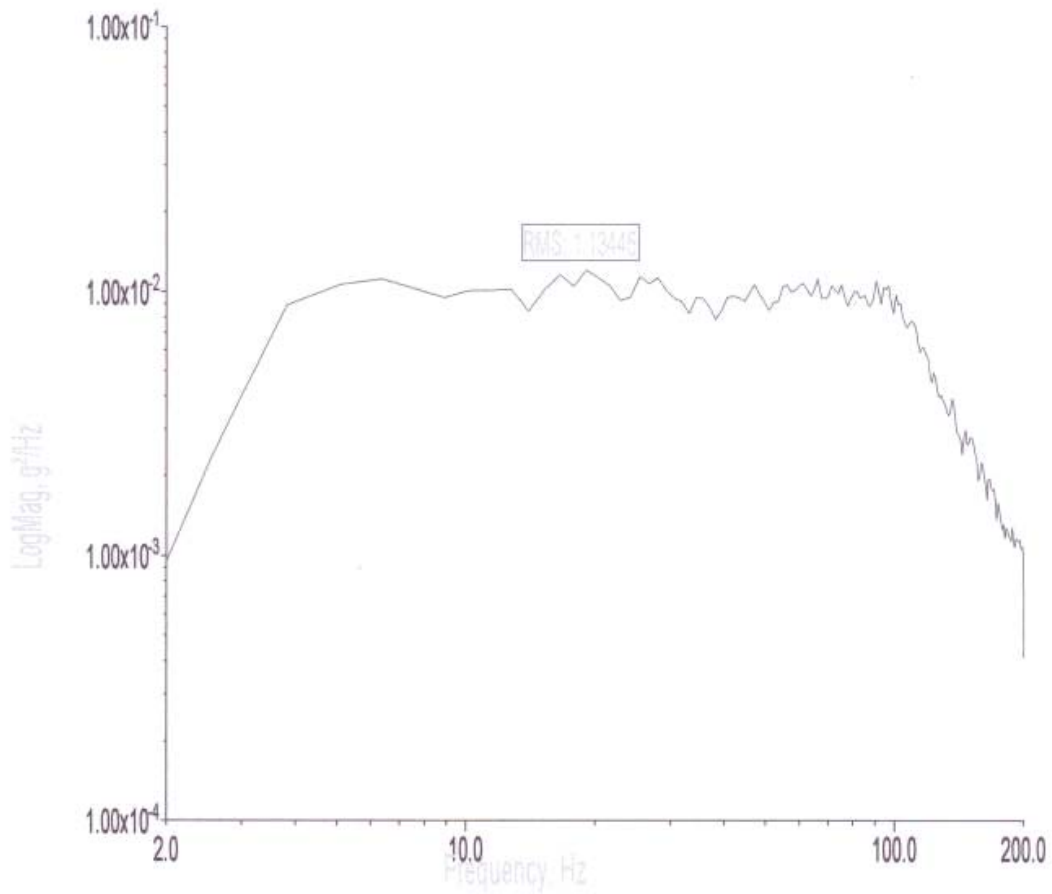
Remaining: 0:00:00
Demand: 1.15 g

At Level: 0:10:00
Actual: 1.13 g

Elapsed: 0:10:20
Drive: 0.5812 V

Level: 0.00 dB
Status: Ready

Control: Measurement 1



Orientation: Top Down (10 Minutes)
Test Engineer: Eric Lau
Westpak Report No. 111-07-0524A

EL
4/17/07

Kodiak: 36-Litre ATA Case (1 case tested)
ISTA 7D, Random Vibration
2-200 Hz at 1.15 G rms

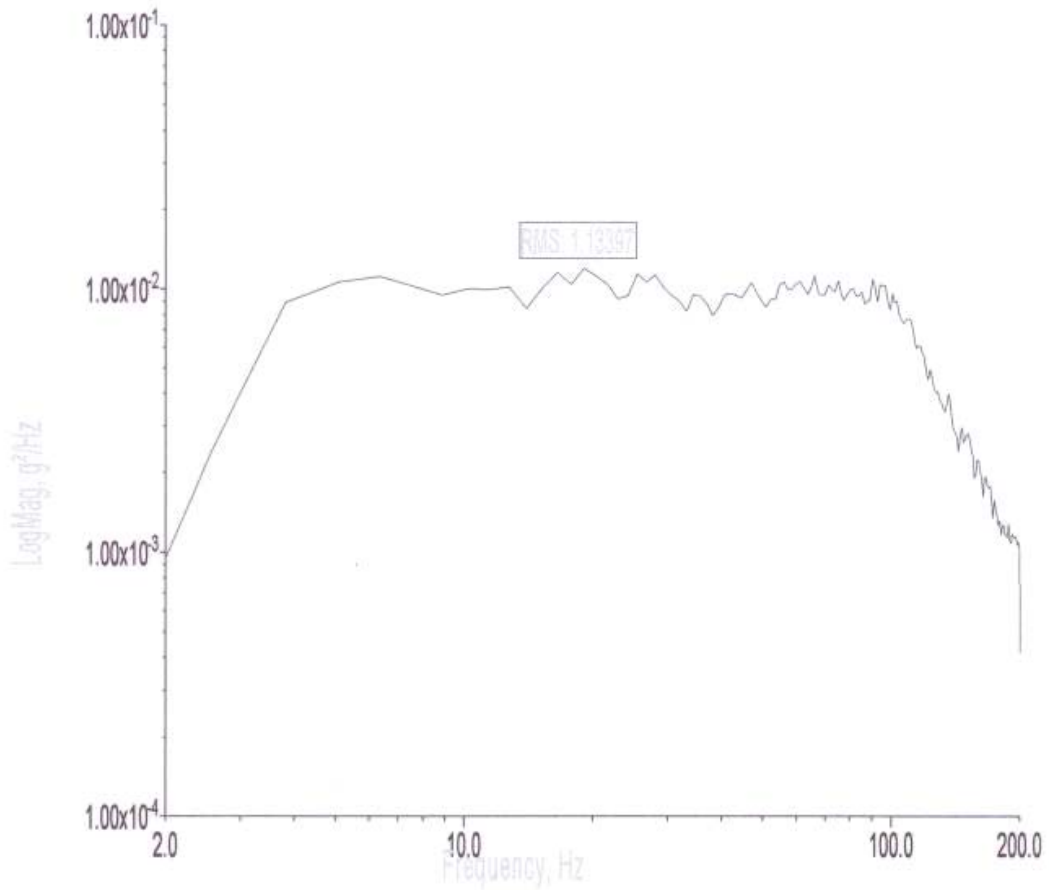
Remaining: 0:00:00
Demand: 1.15 g

At Level: 0:10:00
Actual: 1.13 g

Elapsed: 0:10:20
Drive: 0.5807 V

Level: 0.00 dB
Status: Ready

Control: Measurement1



Orientation: Side Down (10 Minutes)
Test Engineer: Eric Lau
Westpak Report No. 111-07-0524A

EL
4/17/08

Kodiak: 36-Litre ATA Case (1 case tested)
ISTA 7D, Random Vibration
2-200 Hz at 1.15 G rms

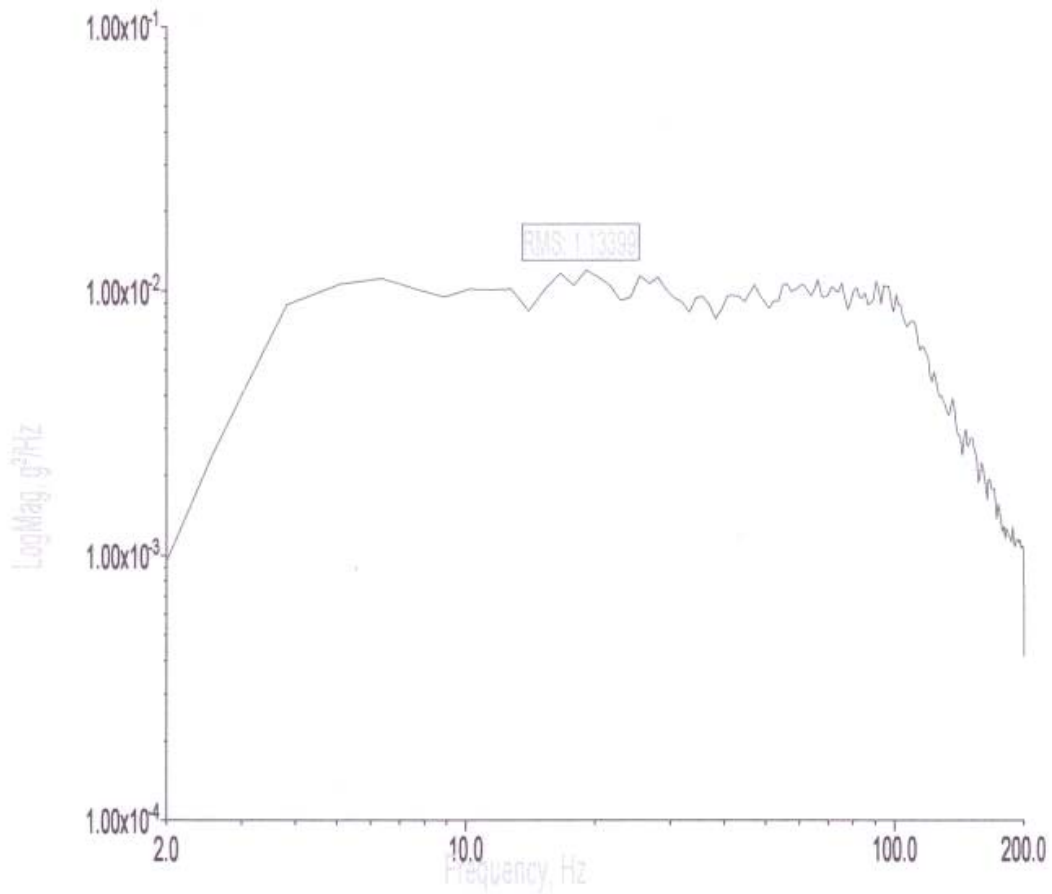
Remaining: 0:00:00
Demand: 1.15 g

At Level: 0:10:00
Actual: 1.13 g

Elapsed: 0:10:20
Drive: 0.5806 V

Level: 0.00 dB
Status: Ready

Control/Measurement1



Orientation: End Down (10 Minutes)
Test Engineer: Eric Lau
Westpak Report No. 111-07-0524A

EU
11/19/07