

JAPAN BUSINESS LOGISTICS
PACKAGING TEST REPORT

TEST PURPOSE : ISTA 6 FedEx- A
Evaluation test for the product & packaging

CLIENT : Panasonic Corporation

SPECIMEN : VIXELL

TEST LABORATORY : Japan Business Logistics Co., Ltd.

TEST DATE : Aug. 28, 2019

ISSUE DATE : Sep. 5, 2019

OPERATOR : Terumi Ishii


Prepared by : *T. Ishii*
T. Ishii
Packaging Solution
Japan Business Logistics Co., Ltd.

Approved by : *Y. Ishii*
Y. Ishii
Manager of Packaging Solution
Japan Business Logistics Co., Ltd.



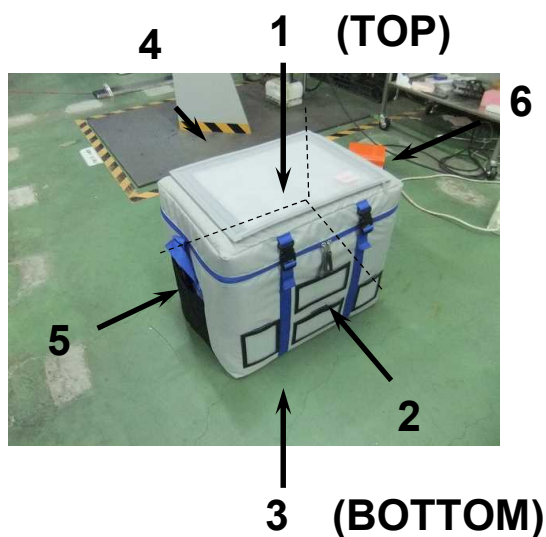
Member ID: ST-9785

1.0 TEST DESCRIPTION

TEST PURPOSE	To assess the capability of the product & packaging to withstand types of vibration and shock levels encountered during the normal shipping cycle in accordance with ISTA 6 FedEX-A.	
TEST SPECIMENS	VIXELL	
	Package Type : Plastic Case	<p style="text-align: center;">TEST SPECIMEN</p> 
	Packaged Size: 510L x 370W x 410H mm	
	Packaged-Weight : 12.6 kg	
	Number of Test Specimen : 1 pc	
TEST SEQUENCE	TEST STANDARD : ISTA 6 FedEx-A	
	1、 Atmospheric Preconditioning (Temperature and Humidity)	
	2、 Shock (Drop)	
	3、 Compression	
	4、 Vibration	
	5、 Shock (Drop)	
Acceptance Criteria	Criteria	Product is damage-free
	Method used to determine Pass/Fail	Pass/fail result will be determined by visual inspection and function test after the all test schedule is conducted.
	Decision Person	Panasonic Corporaion

2.0 TEST DESCRIPTION

Identification of Face

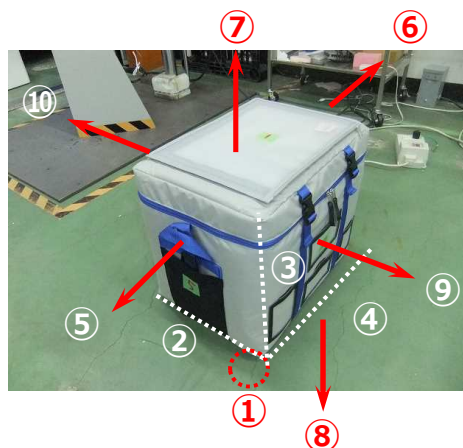


1.0 Atmospheric Preconditioning (Temperature and Humidity)

Ambient Temperature & Humidity	Start of test: 23.5 °C / 61 %RH Aug. 27, 2019 at 5:00 p.m.
	End of test : 21.7 °C / 64 %RH Aug. 28, 2019 at 12:10 a.m.
Time of conditioning prior to test	More than 12 hours
Test duration	Aug. 27, 2019 ~ Aug. 28, 2019
Equipment	Thermo Recorder Ondotori (T&D Corp. Model: TR-72wf)
Calibration date	Jul. 4, 2019 (Calibration due: Jul. 4, 2021)

2.0 Shock (Drop)				
Number of drops	10 times			
Conditions	Drop No,	Drop Height (mm)	Orientation	
	No.01	762	Most fragile corner	Corner 2-3-5
	No.02	762	Shortest edge radiating from the drop corner	Edge 3-5
	No.03	762	Medium edge radiating from the drop corner	Edge 2-5
	No.04	762	Longest edge radiating from the drop corner	Edge 2-3
	No.05	762	Flat one of the smallest faces	Face 5
	No.06	762	Flat one of the opposite small face	Face 6
	No.07	762	Flat one of the medium faces	Face 1
	No.08	762	Flat one of the opposite medium face	Face 3
	No.09	762	Flat one of the largest faces	Face 2
	No.10	762	Flat one of the opposite large face	Face 4
Test Date	Aug. 28, 2019			
Equipment	Free Fall Drop Tester (Lansmont Model: PDT-56ED)			
Calibration date	May 8, 2018 (Calibration due: *Sep. 30, 2019) *The tester will be moved to other area in September due to the lab expansion.			

① ~ ⑩ : Drop Number

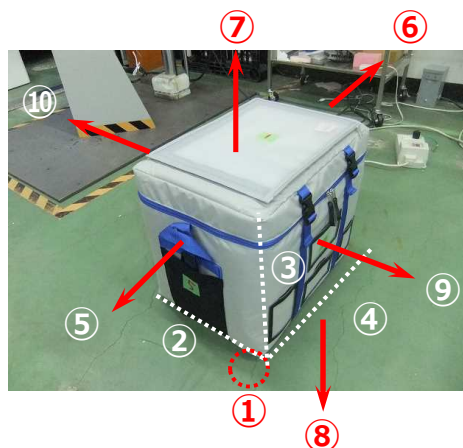


3.0 Compression	
Number of Compression	1 time
Direction	Vertical
Speed	12.7 mm / min (0.5 in / min)
Compression Load	<p><u>Compression Load (pounds) = 0.007 × (108-H) × L × W × F</u></p> <p>H: Height of shipping unit (inches) L: Length of shipping unit (inches) W: Width of shipping unit (inches) F: factor = "3"</p> <p>= 0.007 × (108-16.14) × 20.1 × 14.57 × 3 = 565 pounds = 256 kgf</p>
Test Date	Aug. 28, 2019
Equipment	Orientec CTM-1-5000
Calibration date	Mar. 15, 2019 (Calibration due: Mar. 15, 2020)

4.0 Vibration																
Test Method	ASTM D4728															
Air PSD	<table border="1"> <thead> <tr> <th>Frequency (Hz)</th> <th>ASD/PSD (G²/Hz)</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>0.0002</td> </tr> <tr> <td>12</td> <td>0.01</td> </tr> <tr> <td>100</td> <td>0.01</td> </tr> <tr> <td>300</td> <td>0.00001</td> </tr> </tbody> </table> <p>1.06 Grms</p>	Frequency (Hz)	ASD/PSD (G ² /Hz)	2	0.0002	12	0.01	100	0.01	300	0.00001	<p>Aircraft Random Vibration Profile</p>				
	Frequency (Hz)	ASD/PSD (G ² /Hz)														
2	0.0002															
12	0.01															
100	0.01															
300	0.00001															
Duration : 30 minutes	Direction : Vertical															
Truck PSD	<table border="1"> <thead> <tr> <th>Frequency (Hz)</th> <th>ASD/PSD (G²/Hz)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.00005</td> </tr> <tr> <td>4</td> <td>0.01</td> </tr> <tr> <td>16</td> <td>0.01</td> </tr> <tr> <td>40</td> <td>0.001</td> </tr> <tr> <td>80</td> <td>0.001</td> </tr> <tr> <td>200</td> <td>0.00001</td> </tr> </tbody> </table> <p>0.52 Grms</p>	Frequency (Hz)	ASD/PSD (G ² /Hz)	1	0.00005	4	0.01	16	0.01	40	0.001	80	0.001	200	0.00001	<p>Truck Random Vibration Profile</p>
	Frequency (Hz)	ASD/PSD (G ² /Hz)														
1	0.00005															
4	0.01															
16	0.01															
40	0.001															
80	0.001															
200	0.00001															
Duration : 30 minutes	Direction : Vertical															
Duration	<u>International Shipments_Regular</u> 90 minutes (Truck_30 min. → Air_30 min. → Truck_30min.)															
Test Date	Aug. 28, 2019															
Equipment	Vibration Tester (Shinken Co.,Ltd. Model: G8210-1LT-112)															
Calibration date	Mar. 4, 2019 (Calibration due: Mar. 4, 2020)															

5.0 Shock (Drop)				
Number of drops	10 times			
Conditions	Drop No,	Drop Height (mm)	Orientation	
	No.01	762	Most fragile corner	Corner 2-3-5
	No.02	762	Shortest edge radiating from the drop corner	Edge 3-5
	No.03	762	Medium edge radiating from the drop corner	Edge 2-5
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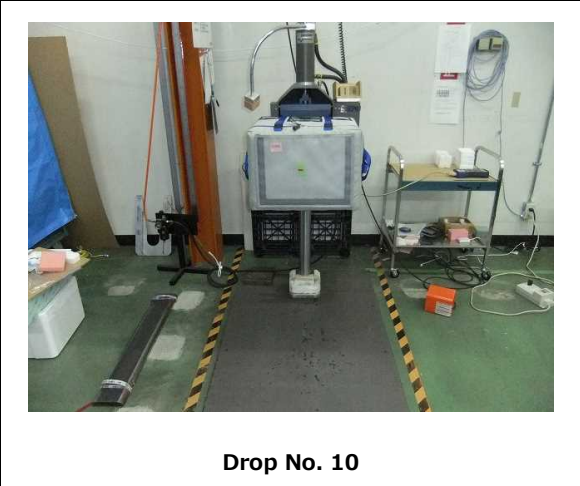
3.0 TEST RESULT

PACKAGE Condition after testing	Visual inspection was conducted after all test schedules were completed. No physical damage was found on the plastic case.
PRODUCT Condition after testing	Final inspection will be conducted by Panasonic Corporation.
Test result	After the test, we observed that the inside of the package was in a low temperature state. Pass/Fail result will be determined after final inspection to be conducted by Panasonic Corporation.

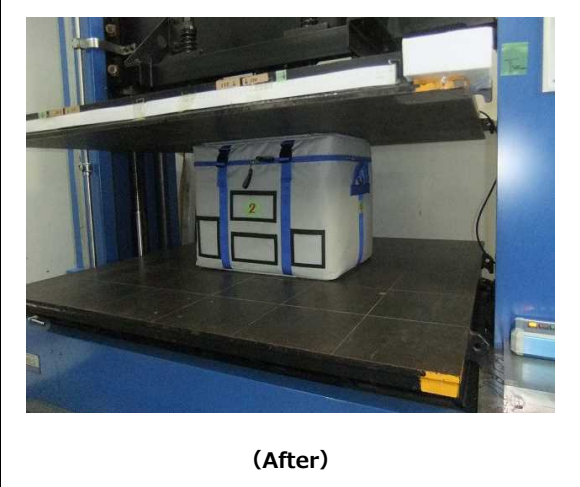
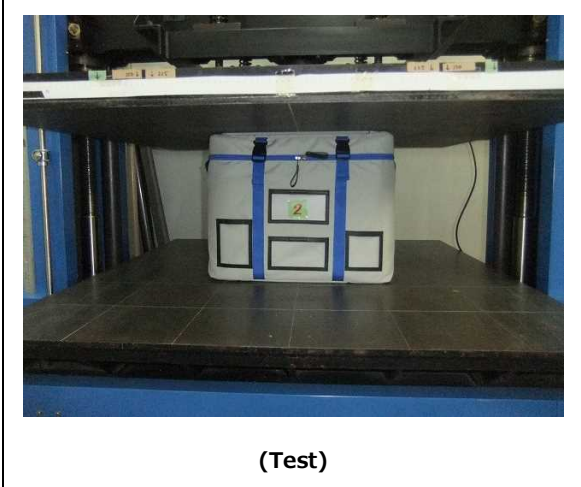
4.0 PHOTO

Shock (Drop)

	
<p>Drop No. 01</p>	<p>Drop No. 02</p>
	
<p>Drop No. 03</p>	<p>Drop No. 04</p>
	
<p>Drop No. 05</p>	<p>Drop No. 06</p>



Compression



Vibration



After Test

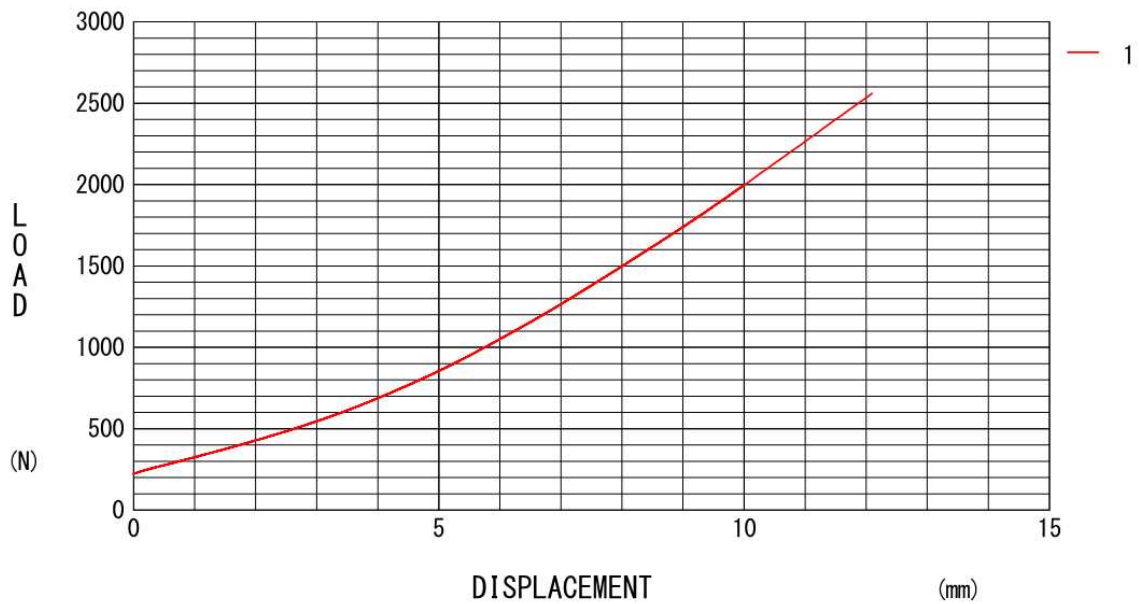


5.0 TEST DATA

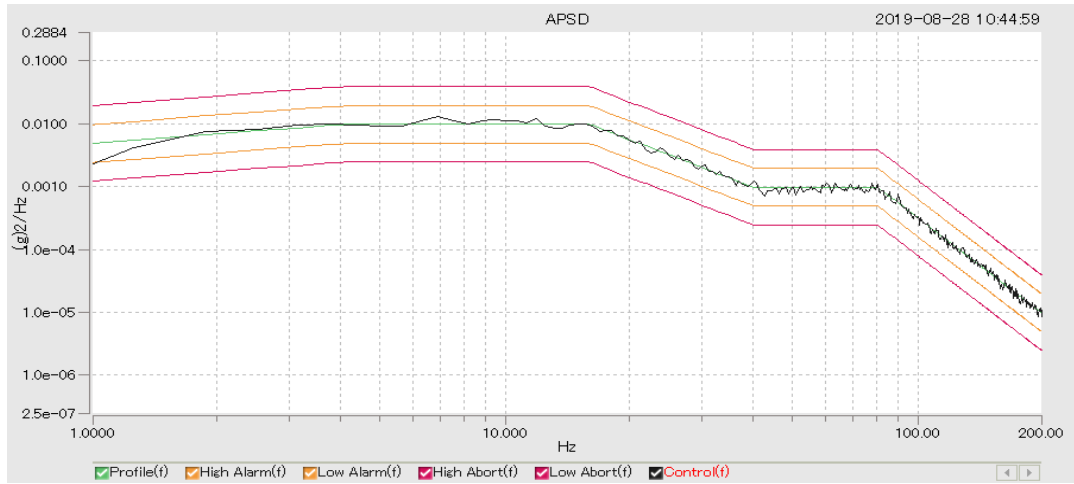
Compression

NAME	VIXELL			LOT	Apply & Release
DATE	2019/08/28 09:25	FILE	S98-001	TESTER	T. Iwahori

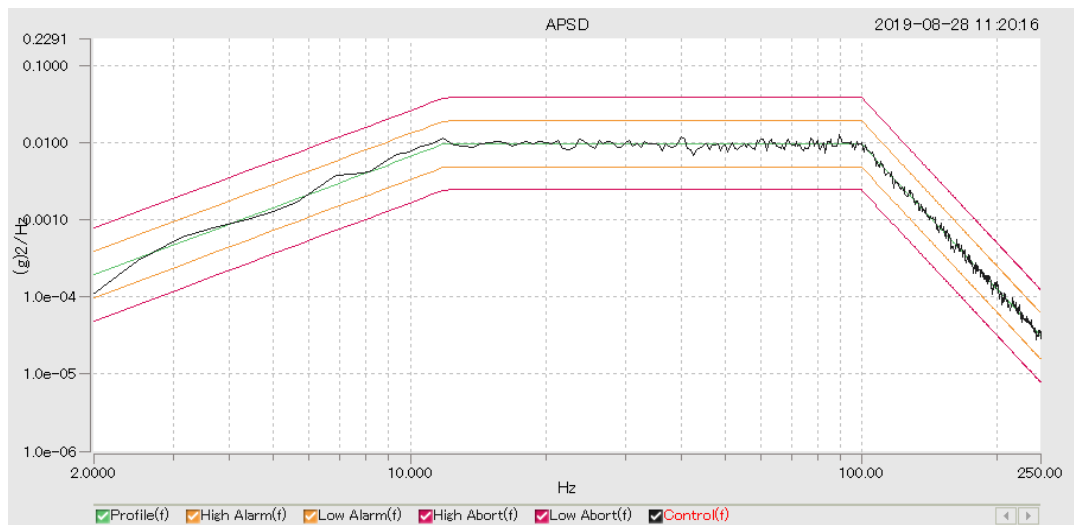
No.	MAX LOAD (kgf)	MAX LOAD (N)	MAX DISPLACEMENT (mm)
1	261.03	2559.8	12.097



Vibration Truck Random (30 min)



Air Random (30 min)



Truck Random (30 min)

