



Certificate of Test Compliance

Worked Performed For:
Pelican Products
23215 Early Ave.
Tustin, CA 90505

Job No. 10491
Contract No. N/A
Purchase Order No. 4500140755
Date 9/22/17

Dust (IP6X) Test

Test Requirements:

Kelly Space & Technology, Inc. certifies that the Case, Part No. 1607 24.07" x 18.74" x 13.21" was subjected to Dust IP6X per IEC 60529 (IP6X) Par. 13.4 & 13.6.

Pre-Conditioning:

Temperature: 15°C to 35°C
Humidity: 25% to 75%
Dust: Talcum Powder
Dust Concentration: 2 Kg per cubic meter test chamber volume
Duration: 8 hours

The testing was completely and correctly performed in accordance with IEC 60529 (IP6X) Par. 13.4 & 13.6. specifications. Complete Test Results are documented in Kelly Space & Technology, Inc. Test Report No. 10491.

Test Summary:

Place the test specimen in a test chamber. Establish a dust concentration of 2 Kg per cubic meter test chamber volume. Expose the test specimen to this dust environment for 8 hours

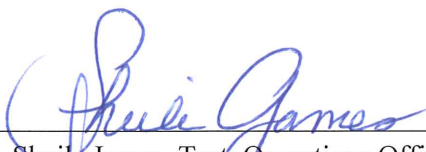
Remove accumulate dust from the specimen by brushing, wiping, or shaking, taking care to avoid introducing additional dust into the test item. Do not remove dust by either air blast or vacuum cleaning. Perform a visual examination for evidence of damage or deterioration.

All testing was performed per the Test Requirements and Test Summary stated above.
There was no visible evidence of dust penetration or damage was observed to the case.

ISO Certification

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Prepared by:


Sheila James, Test Operations Office Manager

Approved By:


Jason Lee, Quality Assurance Manager



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Immersion IPX7 Test

Test Requirements:

Kelly Space & Technology, Inc. certifies that the Case, Part No. 1607 24.07" x 18.74" x 13.21" was subjected to Immersion IPX7 per IEC 60529 (IPX7) Par. 14.2.7.

Water Level: Test specimens with a height less than 850 mm (33.46 inches) has the lowest point of the test specimen 1000 mm (39.37 inches) below the surface of the water. Test specimens with a height equal to or greater than 850 mm (33.46 inches) has the highest point of the test specimen 150 mm (3.9 inches) below the surface of the water.

Water Temperature: Water temperature does not differ from that of the equipment by more than 5 K (9°F).

Soak Duration: 30 minutes.

The testing was completely and correctly performed in accordance with IEC 60529 (IPX7) Par. 14.2.7 specifications. Complete Test Results are documented in Kelly Space & Technology, Inc. Test Report No. 10491.

Test Summary:

Visually inspect the test specimen. Place the test specimen in a submersion tank. Test specimens with a height less than 850 mm (33.46 inches) has the lowest point of the test specimen 1000 mm (39.37 inches) below the surface of the water. Test specimens with a height equal to or greater than 850 mm (33.46 inches) has the highest point of the test specimen 150 mm (3.9 inches) below the surface of the water.

Verify the water temperature does not differ from that of the test item by more than 5 K (9 D F). Allow the test specimen to soak for 30 minutes.

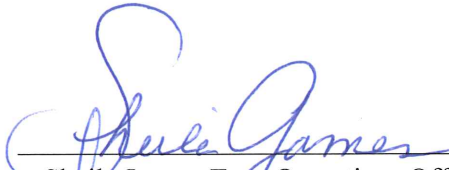
Remove the test specimen from the tank. Perform a visual inspection and check for the presence of water inside the test item. Document all results.

All testing was performed per the Test Requirements and Test Summary stated above. The lowest point of the case was submerged 39.37" below the surface of the water. No visual evidence of water penetration or damage was observed to the case. There was one drop inside from opening case.

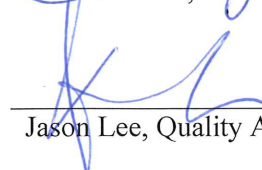
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Vibration Test

Test Requirements:

Kelly Space & Technology, Inc. certifies that the Case, Part No. 1607 24.07" x 18.74" x 13.21" was subjected to Low Temperature per DEF STAN 81-41 Part 3/4 Par. 24.

Pre-Conditioning:

Temperature: $25 \pm 10^{\circ}\text{C}$
Humidity: $60 \pm 15\%$
Duration: 16 hours or until specimen has reached temperature stabilization (whichever is the shortest period)

Test Freq.: 5 to 350 Hz
Test Level: Noted Below
Vibration Type: Sinusoidal
Orientations: 3 (Front/Back, Side/Side, Top/Bottom)

The testing was completely and correctly performed in accordance with DEF STAN 81-41 Part 3/4 Par. 24. specifications. Complete Test Results are documented in Kelly Space & Technology, Inc. Test Report No. 10491.

Test Summary:

Install the test specimen to the vibration test setup in the first orientation. Photograph the test setup.

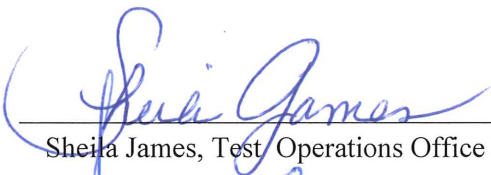
The cases shall be vibrated for 2 hours in each of three mutually perpendicular axes at a vibration amplitude of (± 6 mm peak from 5 to 9 Hz) and (± 2 g peak from 9 to 350 Hz) and at a continuous logarithmic rate of 0.75 ± 0.25 octave per minute.. Perform a visual examination and document all results.

All testing was performed per the Test Requirements and Test Summary stated above.
There was no visible damage to the test specimens upon completion of testing in each axis.

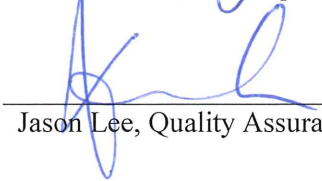
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Low Temperature Test

Test Requirements:

Kelly Space & Technology, Inc. certifies that the Case, Part No. 1607 24.07" x 18.74" x 13.21" was subjected to Low Temperature per DEF STAN 81-41 Part 3/4 Par. 21.

Temperature: $-51 \pm 2^{\circ}\text{C}$

Duration: 16 ± 0.5 hours after specimen has reached test temperature or 7 days ± 1 hour if time required for the complete package to attain the temperature cannot be assessed.

The testing was completely and correctly performed in accordance with DEF STAN 81-41 Part 3/4 Par. 21 specifications. Complete Test Results are documented in Kelly Space & Technology, Inc. Test Report No. 10491.

Test Summary:

Place the test specimen in a test chamber on the face on which it normally is expected to be transported or stored. Install a thermocouple on the test specimen. Decrease the chamber temperature to $-51 \pm 2^{\circ}\text{C}$ at a rate not to exceed 3°C per minute. Maintain the chamber at $-51 \pm 2^{\circ}\text{C}$ for either:

- 1) 16 ± 0.5 hours after specimen has reached test temperature or
- 2) 7 days ± 1 hour if time required for the complete package to attain the temperature cannot be assessed.

Return the chamber temperature to ambient conditions at a rate not to exceed 3°C per minute.

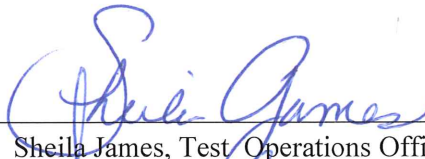
Perform a visual examination. The package is considered to have failed if it is unserviceable or is affected in any way which would potentially cause the test specimen to become unserviceable.

All testing was performed per the Test Requirements and Test Summary stated above.
There was no visible damage to the test specimens upon completion of testing.

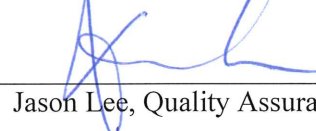
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Dry Heat Test

Test Requirements:

Kelly Space & Technology, Inc. certifies that the Case, Part No. 1607 24.07" x 18.74" x 13.21" was subjected to Dry Heat per DEF STAN 81-41 Part 3/4 Par. 14 & 17.

Pre-Conditioning:

Temperature: $25 \pm 10^{\circ}\text{C}$
Humidity: $60 \pm 15\%$
Duration: 16 hours or until specimen has reached temperature stabilization (whichever is the shortest period)

Dry Heat Test:

Temperature: $71 \pm 2^{\circ}\text{C}$
Humidity: Not to exceed 75%
Duration: 48 ± 1 hours

The testing was completely and correctly performed in accordance with DEF STAN 81-41 Part 3/4 Par. 14 & 17 specifications. Complete Test Results are documented in Kelly Space & Technology, Inc. Test Report No. 10491.

Test Summary:

Place the test specimen in a test chamber on the face on which it normally is expected to be transported or stored. Install a thermocouple on the test specimen. Maintain the chamber at $25 \pm 10^{\circ}\text{C}$ and $60 \pm 15\%$ relative humidity for 16 hours or until the specimen has reached temperature stabilization (test specimen temperature within tolerance of chamber temperature).

Increase the chamber temperature to $71 \pm 2^{\circ}\text{C}$ at a rate not to exceed 3°C per minute. Humidity is not to exceed 75%. Maintain the chamber at these conditions for 48 ± 1 hour.

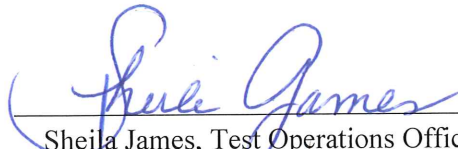
Return the chamber temperature to ambient conditions at a rate not to exceed 3°C per minute. Perform a visual examination and document all results.

All testing was performed per the Test Requirements and Test Summary stated above.
There was no visible damage to the test specimens upon completion of testing.

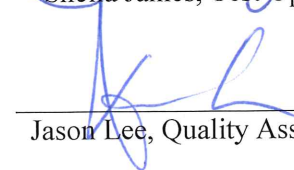
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Vertical Impact Test

Test Requirements:

Kelly Space & Technology, Inc. certifies that the Case, Part No. 1607 24.07" x 18.74" x 13.21" was subjected to Vertical Impact per DEF STAN 81-41 Part 3/4 Par. 19.

Pre-Conditioning

Temperature: 25 ± 10 °C
Humidity: $60 \pm 15\%$
Duration: 16 hours after specimen has reached temperature stabilization (whichever is the shortest period).

Vertical Impact:

Drop Height: $39.4" \pm 0.79"$
Drops: One on each side
Impact Surface: A solid mass at least 20 times that of the heaviest case and an area sufficiently large to ensure that the case fall entirely upon the surface.

The testing was completely and correctly performed in accordance with DEF STAN 81-41 Part 3/4 Par. 19 specifications. Complete Test Results are documented in Kelly Space & Technology, Inc. Test Report No. 10491.

Test Summary:

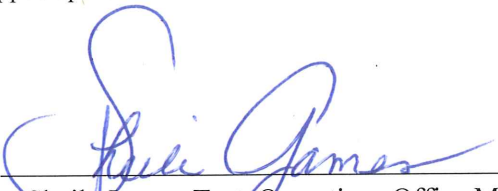
Lift the case and hold it at $39.4" \pm 0.79"$ between the lowest point of the case and at the time of release and the nearest point on the impact surface. Upon completion of the drop, perform a visual inspection and document the results. Repeat one drop for each additional case side.

All testing was performed per the Test Requirements and Test Summary stated above.
There was no visible damage to the test specimens upon completion of testing other than some scuffing to the case exterior due to impact. On drop for surface 2 the left latch popped open.

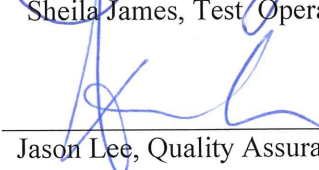
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