Epsilon
Compliance

INGRESS PROTECTION TEST CERTIFICATE

Epsilon Certificate Number:

03TEST1242

This certificate is issued for the following equipment:

Pelican Protector Case Range; 1010, 1020, 1030, 1040, 1050 and 1060.

Manufactured and submitted by:

Pelican Products Inc.
23215 Early Avenue
Torrance
CA 90505
USA

This Certificate is issued subject to the conditions of Epsilon Compliance and any additional conditions as may be prescribed.

European Standard

EN60529: 1992 Incorporating Amendments Nos.1 and 2

International Standard

IEC529: 1989

Ingress Protection Rating: IP67

This is to certify that the above apparatus has been tested in accordance with the requirements of EN60529: 1991 Incorporating Amendments Nos.1 and 2 and IEC529: 1989 and offers a degree of protection IP67.

Project Number: ETS0693/A/1

Issue Date: 21st July 2003

On Behalf of Epsilon Compliance

S L D'Henin
Certification Manager

ASCB(E) Accrediting Certifying Bodies.

This certificate may only be used in its entirety and without change

EPSILON
COMPLIANCE
SERVICES

Certification Report

Ingress Protection Report

Checked:  A Moran
Approvals Engineer

Author:  S D'Henin
Principal Approvals Engineer

Date: 22 July 2003

INGRESS PROTECTION REPORT

Equipment: Pelican Protector Case Range; 1010, 1020, 1030, 1040, 1050, 1060, 1610, 1620 and 1660.

Company: Pelican Products Inc.

Report No: RETS(P)0693/A/1

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TEST REPORT

Author: A. Moran
Approvals Engineer

Carried out by Epsilon Compliance on behalf of:

Pelican Products Inc.
23215 Early Avenue
Torrance
CA 90505
USA.

Commercially in confidence

1 INTRODUCTION

Equipment: Pelican Protector Case range 1010, 1020, 1030, 1040, 1050, 1060, 1610, 1620 and 1660.

European Standards: EN60529: 1992 incorporating Amendments Nos.1 and 2 (Degrees of protection provided by enclosures)

Assessments and Tests Conducted Between: 22nd April – 22 July 2003

Samples Received:

Sample	Quantity	Serial Number	Date Received at Epsilon
Micro Case 1010	1	03/03/2022	10th April 2003
Micro Case 1020	1	03/03/2023	10th April 2003
Micro Case 1030	1	03/03/2024	10th April 2003
Micro Case 1040	1	03/03/2025	10th April 2003
Micro Case 1050	1	03/03/2026	10th April 2003
Micro Case 1060	1	03/03/2027	10th April 2003
Large Case 1610	1	03/03/2000	31st March 2003
Large Case 1620	1	03/03/2030	10th April 2003
Large Case 1660	1	03/03/1998	31st March 2003

1.1 Description of Apparatus

Pelican Protector Case range 1010, 1020, 1030, 1040, 1050, 1060, 1610, 1620 and 1660, are made of copolymer and are sealed with a neoprene o-ring and secured with ABS latches. They include also an automatic purge valve for quick equalization after changes in atmospheric pressure.
The cases have the following approximate dimensions;

Sample	Exterior Dimensions
Micro Case 1010	138 x 103 x 54 mm.
Micro Case 1020	162 x 121 x 54 mm.
Micro Case 1030	191 x 98 x 62 mm.
Micro Case 1040	191 x 129 x 54 mm.
Micro Case 1050	191 x 129 x 79 mm.
Micro Case 1060	238 x 141 x 64 mm.
Large Case 1610	624 x 490 x 303 mm.
Large Case 1620	630 x 492 x 352 mm.
Large Case 1660	800 x 581 x 479 mm.

Micro Cases have two hinges along the back edge, and one locking mechanism along the front edge. A gasket is situated around the rim inside the lower half of the case which is compressed by a lip situated around the rim in the upper half of the case when the case is shut.

Large Cases 1610 and 1620 have two hinges along the back edge, and four locking mechanisms, two along the front edge and one on each side. A gasket is situated around the rim inside the upper half of the case which is compressed by a lip situated around the rim in the lower half of the case when the case is shut.

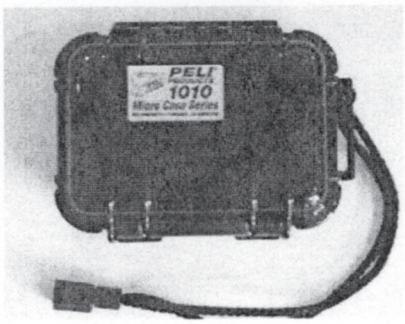
Large Case 1660, has three hinges along the back edge, and seven locking mechanisms, three along the front edge and two on each side. A gasket is situated around the rim inside the upper half of the case which is compressed by a lip situated around the rim in the lower half of the case when the case is shut.

2 ASSESSMENTS

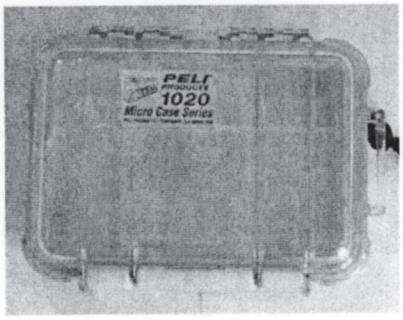
The IP tests were carried out on representative samples for each series provided by Pelican. The selection was made considering the case dimensions and ABS latches as well as distance between them. In each test the worst case representative sample was chosen therefore the test result will be covering the whole case range.

IP Test	Representative Sample
IP6X	1060 & 1620
IPX6	1620
IPX7	Whole Micro Case Range

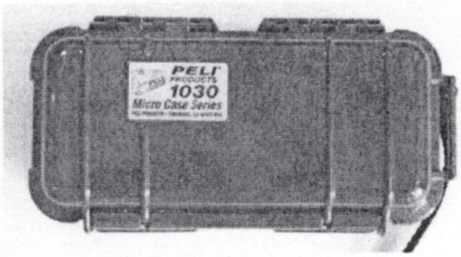
Micro case 1010



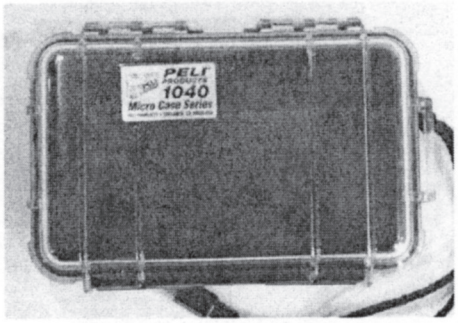
Micro case 1020



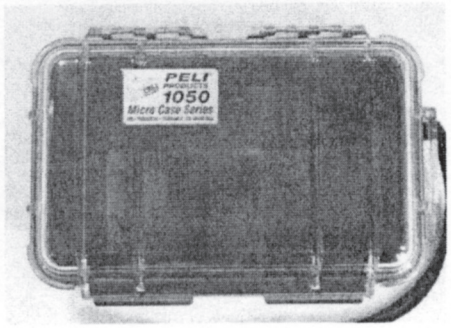
Micro case 1030



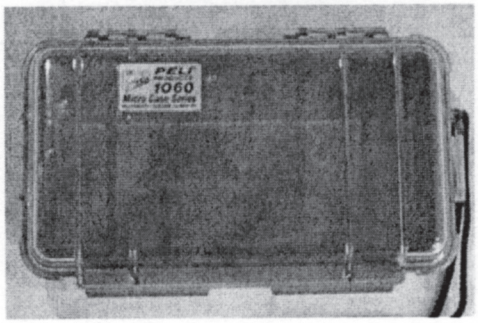
Micro case 1040



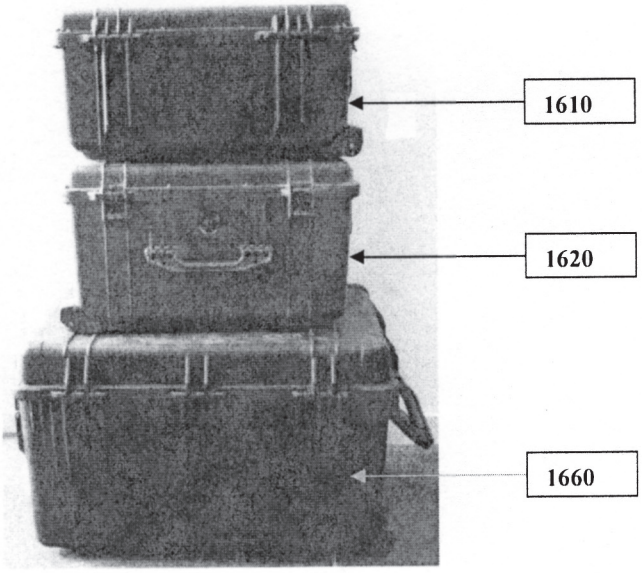
Micro case 1050



Micro case 1060



Large cases 1610, 1620 and 1660



3 TESTS

3.1 Test Methods

The cases were subjected to ingress protection tests for a degree of protection IP67 and IP66.

3.1.1 Ingress Protection Level First Numeral 6 (IP6X)

The test samples were fitted with an extraction tube prior to the test. The tube was used to apply a depression of 200 mm H_20 (20 mbar) below atmospheric pressure to the test sample. Note that due to very low leakage rates, the extraction rate values were not applied and the maximum depression method used.

The sample was exposed to the specified dust environment, at the stated depression, for 8 hours.

3.1.2 Ingress Protection Level Second Numeral 6 (IPX6)

The large cases test samples were subjected to a water spray from all practicable directions using a standard 12.5 mm internal diameter nozzle at a flow rate of 100 L/min, from a distance of 2.5 – 3 metres. The test was carried out for 3 minutes.

3.1.3 Ingress Protection Level Second Numeral 7 (IPX7)

The micro cases test samples were immersed in a tank of water such that the lower part of the samples was 1 m below the surface of the water and the upper part of the samples were at least 150 mm below the surface of the water for 30 minutes.

3.2 Test Results

3.2.1 Ingress Protection Level First Numeral 6 (IP6X)

The samples were removed from the dust cabinet after 8 hours and examined for dust ingress; no ingress of dust was observed.

3.2.2 Ingress Protection Level Second Numeral 6 (IPX6)

Excess water was removed from the outside of the sample and then examined internally for ingress of water; no ingress was observed.

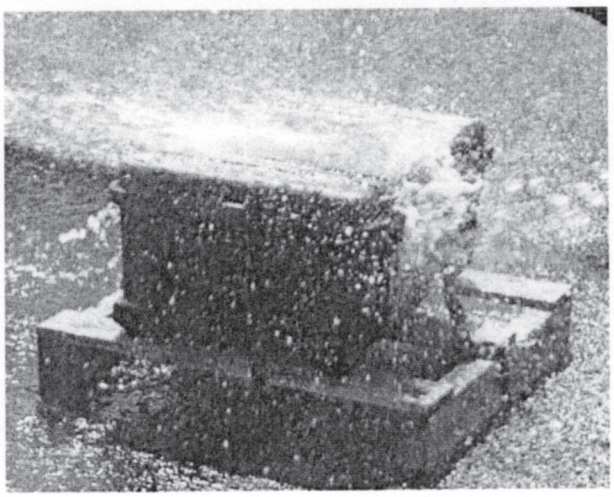
3.2.3 Ingress Protection Level Second Numeral 7 (IPX7)

The samples were removed from the water tank after 30 minutes and examined for ingress of water; no ingress was observed.

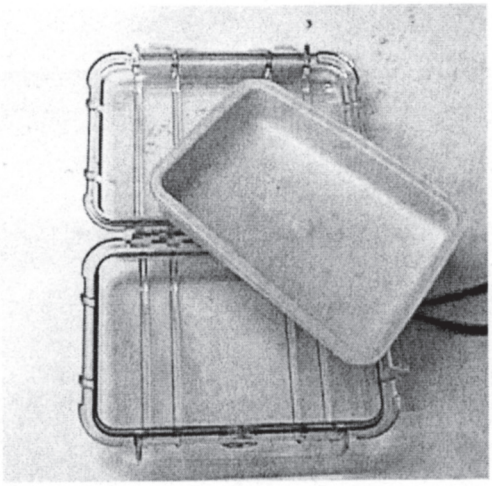
4 CONCLUSION

The test samples type tested were deemed to offer a degree of ingress protection IP66 on large cases and IP67 on micro cases in accordance with the requirements of the relevant clauses of EN60529: 1992 incorporating Amendments Nos.1 and 2.

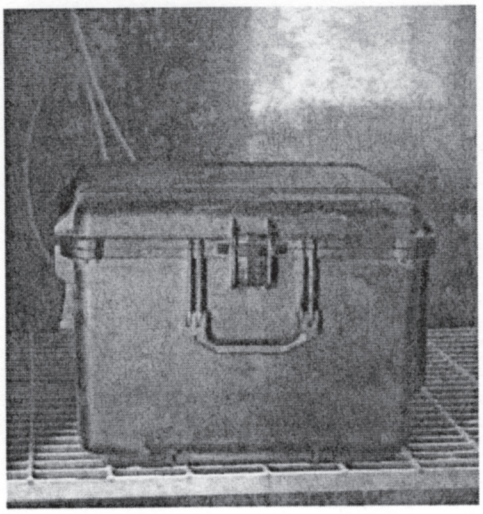
Picture 1
Large Case 1620 During IPX6 Test



Picture 2
Micro Case 1020 After IPX7 Test



Picture 3
Large Case 1620 After IP6X Test



Picture 4
Large Case 1060 After IP6X Test