

December 28, 2015



Email: pcpm.ea@gmail.com

Mr. Eric Allen
Fast Rescue Solutions, LLC
39 Springfield Ave.
Flourtown, PA 19031

Reference: File: MH61192 Project : 4787174563
Subject: Verification Services – FAST Board

Dear Mr. Allen:

Project 4787174563 was established to evaluate the performance characteristics of the FAST Board in accordance with the agreed upon test protocol based on the procedures from NFPA 1983-2012. The testing has been completed and a copy of the testing protocol and test data are included in this report.

UL Verification Services did not select the samples, determine whether the samples were representative of production samples, witness the production of the test samples, nor were we provided with information relative to the formulation or identification of component materials used in the test samples. The test results apply only to the actual samples tested.

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This letter will serve to report that all tests on the subject product have been completed.

Thank you for the opportunity to provide your company with these services. Please do not hesitate to contact us if you should have any questions or comments.

Sincerely,

A handwritten signature in black ink that reads "G.W. Barrett".

G.W. Barrett
Associate Project Engineer
Personal Protective Equipment
Tel: 919-549-1414
E-mail: GW.Barrett@ul.com

Reviewed by:

A handwritten signature in black ink that reads "Beverly Wooten Stutts".

Beverly Wooten Stutts
Staff Engineer
Personal Protective Equipment
Tel: 919-549-1434
E-mail: Beverly.W.Stutts@ul.com

LITTER STRENGTH TEST:

(NFPA 1983-2012, Section 8.13)

1.0 APPLICATION

1.1 This test shall apply to litters.

2.0 SAMPLES

2.1 Samples for conditioning shall be whole items.

2.2 Samples shall be conditioned at a temperature of 21°C, ±3°C (70°F, ±5°F) and a relative humidity of 65 percent, ±5 percent for at least 24 hours. Specimens shall be tested within 5 minutes after removal from conditioning.

2.3 Samples shall be in new and unused condition and shall conform in all respects to the manufacturer's specifications for the model being tested.

3.0 SPECIMENS

3.1 Specimens shall be whole items.

3.2 A minimum of two specimens shall be tested in the horizontal position.

3.3 A minimum of two specimens shall be tested in the vertical position.

3.4 The specimens used for testing in the vertical position shall be different specimens than those used in the horizontal position.

4.0 APPARATUS

4.1 Use calibrated electronic load measuring device.

4.2 If used, an anchor plate shall be installed in the litter in such a way that the force distributes equally and does not concentrate on a single element. The anchor plate size must be kept to a minimum so that it does not provide any increased resistance to the litter bending during a test.

4.3 Where the litter does not have a frame, the plate shall span any ribs or other structural elements within the shell in order that the forces are distributed over a wide enough area that unintentional damage does not occur.

4.4 The attachment points of the litter bridle and the litter's ability to resist folding or bending both longitudinally and laterally shall be tested.

4.5 Where the litter has two halves that connect together to form the litter, the connection points shall be tested.

LITTER STRENGTH TEST: (CONT'D)

(NFPA 1983-2012, Section 8.13)

5.0 PROCEDURE

5.1 Horizontal Testing (Fig. 1)

- 5.1.1 Attach a 4 kg litter bridle to the litter at points designated by the litter manufacturer.
- 5.1.2 The bridle shall be constructed of chain or cable to eliminate stretching or the potential for any adjuster buckle slippage or both.
- 5.1.3 The internal angle of the bridle legs attached to the head and foot ends of the litter shall be $90 \pm 2^\circ$.
- 5.1.4 Secure the litter to the bed of the test machine using an anchor plate of approximately 400 mm by 400 mm (16 in. by 16 in.) inside the litter. The plate shall be centered between the rails and ends of the litter and shall span at least two rails (or ribs) and cross rails (or ribs) to distribute the forces in the litter.
- 5.1.5 Where the litter does not have a frame, or where the specified plate size does not span the frame rails, the size can be increased to span structural elements in the shell or the frame.
- 5.1.6 Apply a pulling force to the bridle at the rate of 300 mm/min \pm 25 mm (12 in./min. \pm 1 in./min.)
- 5.1.7 The test concludes when any part of the litter fails or when any part of a structural element is deformed more than 50 mm \pm 5 mm (2 in. \pm 0.2 in.)

5.2 Vertical Testing (Fig. 2)

- 5.2.1 Attach test apparatus to the head end of the litter at points designated by the litter manufacturer.
- 5.2.2 Where the litter is equipped with designated connection points, then those connection points shall be used.
- 5.2.3 Where the manufacturer suggests that the litter be attached with a system using rope or webbing wrapped around the frame rails, then those instructions shall be followed.
- 5.2.4 The bridle shall be constructed of chain or cable to eliminate stretching or the potential for any adjuster buckle slippage or both. If rope or webbing is used it shall be of sufficient strength to minimize elongation and to insure that the litter is tested and not the attachment method or material.
- 5.2.5 The internal angle of the bridle legs shall be as small as possible.
- 5.2.6 Where the manufactured connections on the litter are in such a location that the bridle contacts the shell of the litter, the bridle shall be extended just enough to eliminate contact with the litter shell.

LITTER STRENGTH TEST: (CONT'D)

(NFPA 1983-2012, Section 8.13)

5.2.7 Secure the litter to the bed of the test machine using an anchor plate of approximately 400 mm by 400 mm (16 in. by 16 in.) inside the litter. The plate shall be centered between the rails and ends of the litter and shall span at least two rails (or ribs) and cross rails (or ribs) to distribute the forces in the litter.

5.2.8 Where the litter does not have a frame, or where the specified plate size does not span the frame rails, the size can be increased to span structural elements in the shell or the frame.

5.2.9 Apply a pulling force to the bridle at the rate of 300 mm/min \pm 25 mm (12 in./min. \pm 1 in./min.)

5.2.10 The test concludes when any part of the litter fails or when any part of a structural element is deformed more than 50 mm \pm 5 mm (2 in. \pm 0.2 in.)

6.0 REPORT

6.1 The breaking strength of each specimen shall be reported to the nearest 0.1 kN (23 lbf.)

6.2 Deformation of the structural element shall be reported to the nearest 5 mm (0.2 in.)

6.3 The lowest observed breaking strength shall be reported as the labeled breaking strength for each vertical and horizontal configuration.

7.0 INTERPRETATION

7.1 Failure of the device prior to the application of the 11 kN (2473 lbf) test load shall constitute failure of the litter.

7.2 Deformation of any structural element of more than 50 mm \pm 5 mm (2 in. \pm 0.2 in.) during testing shall constitute failure of the litter.

8.0 REQUIREMENTS

8.1 Litters shall be tested for strength and deformation as specified in Section 8.12, Litter Strength Test, and shall withstand a minimum load of 11 kN (2473) without failure or deformation of the structural element of more than 50 mm \pm 5 mm (2 in. \pm 0.2 in.)

LITTER STRENGTH TEST: (CONT'D)

(NFPA 1983-2012, Section 8.13)

9.0 RESULTS

Litter Model/Description: FAST Boards by FAST Rescue

Test Position	Specimen	Breaking Strength (kN)
Horizontal	1	Test stopped at 30.0
Vertical	1	27.75
	2	27.8

Notes:

The NFPA 1983 test torso was loaded into each FAST board for all tests. The setup was intended to simulate a human torso loaded into the board. Horizontal test setup anchored the head and groin rings to the floor and the hydraulic piston pulled a set of straps threaded through the top and bottom of the board. Vertical testing was conducted with the torso groin attachment anchored to the stationary attachment element of the vertical tensile tester. The haul straps were attached to the moving end of the vertical tensile tester and a constant load was applied until break.

Deformation was not measured during testing.

Horizontal 1 – Testing was stopped at 6740 lbf (29.98 kN) after machine was fully retracted.

Vertical 1 – The webbing that runs across the left side of the test torso's chest ruptured at 6238 lbf (27.75 kN.)

Vertical 2 – The webbing stitching that runs across the left side of the test torso's chest ruptured at 6252 lbf (27.81 kN.)