

Test Report Number: 2020021101220
Job Number: Qualification 205, 134103,
Product SKU#: 01220
Product Type: Lanyard
Product Model: Guardian 6' Dual Leg External Energy Absorbing Lanyard
Testing Standard: ANSI Z359.13-2013
Dates of Manufacture: 6/01/2018
Date(s) of Testing: 6/20/2018, 6/29/2018

<u>Requirement Verification</u>	<u>Clause/Section</u>	<u>Pass/Fail</u>
General Requirements	3. Requirements	PASS
Markings and Instructions	5. Marking and Reference	PASS

<u>Tests Completed</u>	<u>Test Date</u>	<u>Clause/Section</u>	<u>Pass/Fail</u>
Activation Force (PEA)	6/20/2018	4.2 Activation Force Testing	PASS
Dynamic Performance (Wet)	6/20/2018	4.13.1 Dynamic Performance Wet	PASS
Dynamic Performance (Cold)	6/20/2018	4.13.2 Dynamic Performance Cold	PASS
Dynamic Performance (Hot)	6/20/2018	4.13.3 Dynamic Performance Hot	PASS
Static Strength (Y-Lanyards) (Black)	6/29/2018	4.7.1 Static Strength Testing	PASS
Static Strength (Y-Lanyards) (Black)	6/29/2018	4.7.2 Static Strength Testing	PASS
Static Strength (Y-Lanyards) (Black)	6/29/2018	4.7.3 Static Strength Testing	PASS
Dynamic Performance (Y-Lanyards Single Conn.)	6/20/2018	4.8 Dynamic Performance Testing	PASS
Dynamic Performance (Y-Lanyards Dual Conn.)	6/20/2018	4.9 Dynamic Performance Testing	PASS
Dynamic Performance (Y-Lanyards Hip)	6/20/2018	4.10 Dynamic Performance Testing	PASS
Abrasion Resistance	3/04/2019	4.1.9 Abrasion Test	PASS

John Halas,
Engineer



Date: 2/12/2020

Craig Allen,
Test Technician



Date: 2/14/2020

Andre Pelland,
Compliance & Quality Manager



Date: 2/11/2020

Test Equipment

Equipment	Model	Serial
Load Cell	1220ACK-25K-B	367976A
Load Cell	1210AF-10K-B	470679A

This test report covers these additional products:

L121601, 01216, 01217, 01218, 01221, 01222, 01230, 01231, 01240, 01241, 01242, 21214, 99-03-0001, 99-03-0005

Notes:



3	Requirements	
3.1	Personal Energy Absorber Component. All Personal energy absorbers bearing this standard number shall meet the design and testing requirements of this standard.	PASS
3.1.1	Classifications. Personal energy absorbers shall be categorized as follows:	PASS
3.1.1.1	"6ft FF" personal energy absorbers shall be designed for up to 6 foot (1.83m) free fall (FF indicates free fall) applications and users weighing between 130 and 310 pounds (59-140kg)	PASS
3.1.1.2	"12ft FF" personal energy absorbers shall be designed for up to 12 foot (3.66m) free fall applications (FF indicates free fall) and users weighing between 130 and 310 pounds. (59-140kg)	PASS
3.1.2	Material. Material used in the construction of personal energy absorbers shall be made of virgin synthetic material having strength, aging, abrasion resistance and heat resistance characteristics equivalent or superior to polyamides.	PASS
3.1.3	Terminations. Personal energy absorbers shall have end terminations which meet the following requirements.	PASS
3.1.3.1	Spliced. Formed eye termination in rope shall be made in accordance with the rope manufacturer's recommendation, subject to the following requirements. Eye splices in twisted rope having three or more strands shall have a minimum of four tucks. A properly sized thimble shall be part of a formed eye termination. Knots shall not be used to form energy absorbing lanyard end terminations. Terminations (including cut ends) and splices shall be seized, whipped or otherwise integrally finished to prevent the termination or splice from unraveling or unsplicing.	PASS
3.1.3.2	Stitched. Stitched eye terminations on strap energy absorbers shall be sewn using lock stitches. Thread shall be of the same material type as the webbing and shall be of a contrasting color to facilitate inspection. Webbing shall be protected from concentrated wear at all interfaces with load bearing connector elements. Webbing ends shall be seared or otherwise prevented from unraveling.	PASS
3.1.3.3	Wire Rope. Formed eye terminations of wire rope shall have a minimum breaking strength of 80% of the wire rope when tested in accordance with ASTM E8/8M-11, Standard Test Methods of Tension Testing of Metallic Materials. The following methods may be used for forming eyes in wire rope: (a) spliced eye with one swaged fitting, or (b) return eye with a minimum of two swaged fittings. All formed eyes shall incorporate a properly sized thimble.	PASS
3.1.3.4	Terminations other than splicing, stitching and swaging are permitted when it can be demonstrated by testing that the requirements of this standard can be met and additionally, that the durability, reliability, strength and other properties pertinent to the intended uses have been evaluated and determined suitable by the manufacturer.	PASS
3.1.4	Connectors. Personal energy absorbers shall have integrally attached connectors or be integral to the energy absorbing lanyard. Connectors used on all personal energy absorbers shall meet the requirements of ANSI/ASSE Z359.12, Safety Requirements for Connecting Components for Personal Fall Arrest Systems (PFAS) Connectors.	PASS
3.1.5	Deployment Indicator. Personal energy absorbers shall be designed such that it is obvious if they have been activated or by a warning flag or label that indicates activation.	PASS
3.1.6	Activation Force. Personal energy absorbers when subjected to a static force no less than 450lb (2kN) in accordance with 4.2 shall not show signs of activation or exhibit permanent elongation greater than 2in. (51mm)	PASS
3.1.7	Static Strength. Personal energy absorbers when statistically tested in accordance with 4.3 shall have a minimum breaking strength no less than 5,000lb (22kN)	PASS
3.1.8	Personal Energy Absorber Dynamic Performance - Ambient Dry Test. Personal energy absorbers tested in accordance with 4.4 shall meet the following requirements:	PASS
3.1.8.1	6ft FF personal energy absorbers shall have an average arrest force no greater than 900lb (4kN) and a maximum deployment distance of 48in. (1.2m) without exceeding 1,800lb (8kN) maximum arrest force.	PASS
3.1.8.2	12ft FF personal energy absorbers shall have an average arrest force no greater than 1,350lb (6kN) and a maximum deployment distance of 60in. without exceeding 1,800lb (8kN) maximum arrest force.	PASS
3.1.9	Personal Energy Absorber Dynamic Performance - Conditioning Tests. Personal energy absorbers shall be conditioned according to the requirements of 4.13.1, 4.13.2 and 4.13.3 and tested according to 4.4. Conditioning tests do not need to be performed when the energy absorber is integral to a lanyard and the energy absorbing lanyard is tested according to 3.2.5.	PASS
3.1.9.1	Conditioned 6ft FF samples shall have an average arrest force no greater than 1,125lb (5kN) without exceeding 1,800lb (8kN) maximum arrest force and a maximum deployment distance of 60in. (1.5m)	PASS
3.1.9.2	Conditioned 12ft FF samples shall have an average arrest force no greater than 1,575lb (7kN) without exceeding 1,800lb (8kN) maximum arrest force and a maximum deployment distance of 60in. (1.5m).	PASS

3.2	Energy Absorbing Lanyard Component. All energy absorbing lanyards bearing this standard number shall be equipped with a personal energy absorber or have energy absorbing ability that meet the design and testing requirements of this standard.	PASS
3.2.1	Material. Rope, webbing and tubular webbing used in the construction of energy absorbing lanyards shall be made of virgin synthetic material having strength, aging, abrasion resistance and heat resistance characteristics equivalent or superior to polyamides.	PASS
3.2.2	Terminations. Energy absorbing lanyards shall have end terminations which meet the following requirements.	PASS
3.2.2.1	Spliced. Formed eye terminations in rope shall be made in accordance with the rope manufacturer's recommendation, subject to the following requirements. Eye splices in twisted rope having three or more strands shall have a minimum of four tucks. A properly sized thimble shall be part of a formed eye termination. Knots shall not be used to form energy absorbing lanyard end terminations. Terminations (including cut ends) and splices shall be seized, whipped, or otherwise integrally finished to prevent the termination or splice from unraveling or unsplicing.	PASS
3.2.2.2	Stitched. Stitched eye terminations on strap energy absorbing lanyards shall be sewn using lock stitches. Thread shall be of the same material type as the webbing and shall be of a contrasting color to facilitate inspection. Webbing shall be protected from concentrated wear at all interfaces with load bearing connector elements. Webbing ends shall be seared or otherwise prevented from unraveling.	PASS
3.2.2.3	Wire Rope. Formed eye terminations of wire rope shall have a minimum breaking strength of 80% of the wire rope when tested in accordance with E8/8M-11, Test Methods of Tension testing of Metallic Materials. The following methods may be used for forming eyes in wire rope: (a) spliced eye with one swaged fitting, or (b) return eye with a minimum of two swaged fittings. All formed eyes shall incorporate a properly sized thimble.	PASS
3.2.2.4	Terminations other than splicing, stitching, and swaging are permitted when it can be demonstrated by testing that the requirements of this standard can be met and additionally, that the durability, reliability, strength and other properties pertinent to the intended uses have been evaluated and determined suitable by the manufacturer.	PASS
3.2.3	Energy Absorbing Lanyard Connectors. Energy absorbing lanyards shall have integrally attached connectors. Connectors used on all personal energy absorbers shall meet the requirements of ANSI/ASSE Z359.12, Safety Requirements for Connecting Components for Personal Fall Arrest Systems (PFAS) Connectors.	PASS
3.2.4	Energy Absorbing Lanyard Dynamic Performance - Ambient Dry Test. Energy absorbing lanyards shall be tested as a complete system according to 4.5. The results of the tests shall meet the requirements of 3.2.4.1 and 3.2.4.2 respectively.	PASS
3.2.4.1	6ft FF energy absorbing lanyards shall have an average arrest force no greater than 900lb (4kN) and a maximum deployment distance of 48in. (1.2m) without exceeding 1,800lb (8kN) maximum arrest force.	PASS
3.2.4.2	12ft FF energy absorbing lanyards shall have an average arrest force no greater than 1,350lb (6kN) and a maximum deployment distance of 60in. (1.5m) without exceeding 1,800lb (8kN) maximum arrest force.	PASS
3.2.5	Energy Absorbing Lanyards Dynamic Performance - Conditioning Tests. Energy absorbing lanyards shall be conditioned according to the requirements of 4.13.1, 4.13.2 and 4.13.3 and tested according to 4.5	PASS
3.2.5.1	Conditioned 6ft FF samples shall have an average arrest force no greater than 1,125lb (5kN) without exceeding 1,800lb (8kN) maximum arrest force and a maximum deployment distance of 48in. (1.2m)	PASS
3.2.5.2	Conditioned 12ft FF samples have an average arrest force no greater than 1,575lb (7kN) without exceeding 1,800lb (8kN) maximum arrest force and a maximum deployment distance of 60in. (1.5m).	PASS
3.2.6	Static Strength. Energy absorbing lanyards when statically tested in accordance with 4.6 shall have a minimum breaking strength no less than 5,000lb (22.2kN). Energy absorbing lanyards that incorporate a means for length (disregarding elastic stretch) up to a load of 2,000lb (8.8kN).	PASS
3.2.7	Abrasion Test. Wrap-around energy absorbing lanyards shall be additionally tested in accordance with 4.12. The wrap-around energy absorbing lanyard shall have a minimum breaking strength no less than 3,600lb (16kN) after being abraded.	PASS
3.2.8	Static Test - Wrap-Around Energy Absorbing Lanyards. Energy absorbing lanyards that are designed to wrap-around a structure and connect back to themselves shall be tested in accordance with 4.11. The energy absorbing lanyard shall have a minimum breaking strength no less than 5,000lb (22.2kN) when connected as designed and instructed for use.	PASS
3.2.9	Static Test - Y-Lanyards. Y-lanyards shall be statically tested in accordance with 4.7 and shall have a minimum breaking strength no less than 5,000lb (22.2kN)	PASS
3.2.10	Dynamic Performance Testing of Y-Lanyards. Y-lanyards shall be tested in accordance with 4.8, 4.9 and 4.10 and shall meet the following requirements:	PASS
3.2.10.1	Y-Lanyards Single Connection. 6ft FF and 12ft FF Y-lanyards shall be tested in accordance with 4.8 and meet the respective requirements of 3.1.8.1 and 3.1.8.2.	PASS
3.2.10.2	Y-Lanyards Dual Connection. 6ft FF and 12ft FF Y-lanyards shall be tested in accordance with 4.9 and shall not at any time exceed a force reading over 1,800lb (8kN).	PASS
3.2.10.3	Dynamic Test - Hip Connection. Y-Lanyards shall be tested in accordance with 4.10. If the energy absorbing lanyard breaks the nylon keeper during the test, the energy absorbing lanyard shall include a warning label on each lanyard leg according to 5.2.2.	PASS

4.2 Activation Force Testing of Personal Energy Absorbers
requirements per 3.1.6

- a) Measure length of specimen under tension of 10lb
- b) Connect specimen to test equipment with connectors at each end
- c) Subject specimen to a force no less than 450lb (2kN) for no less than 1 minute.
- d) Record results
- e) Remove specimen and allow to recover for 1 hour
- f) measure length of specimen under tension of 10lb
- g) Calculate permanent specimen elongation and compare to 3.1.6

4.2 Activation Force Test
requirements per 3.1.6

Sample #10		
Actual force applied	469.12	lb
Length of specimen under 10lb tension (Pre-test)	9.75	inches
Length of specimen under 10lb tension (Post-test)	10.125	inches
Permanent elongation (>2")	.375	inches
Compliant	YES	

4.2 Activation Force Test
requirements per 3.1.6

Sample #11		
Actual force applied	470.41	lb
Length of specimen under 10lb tension (Pre-test)	10	inches
Length of specimen under 10lb tension (Post-test)	10.25	inches
Permanent elongation (>2")	.25	inches
Compliant	YES	

4.2 Activation Force Test
requirements per 3.1.6

Sample #12		
Actual force applied	471.40	lb
Length of specimen under 10lb tension (Pre-test)	10	inches
Length of specimen under 10lb tension (Post-test)	10.25	inches
Permanent elongation (>2")	.25	inches
Compliant	YES	

Notes:



4.7.1 Static Strength Testing of Y-Lanyards
requirements per 3.2.9

- a) Attach central connector intended to connect to harness and one connector on one of the specimen legs into the connectors of the test equipment.
- b) Subject specimen to force no less than 5,000lb (22.2kN) for a period no less than 1 minute. The time to reach this force shall be no less than 3 minutes to avoid dynamic effects.
- c) Compare results to 3.2.9 as required.

4.7.1 Static Strength Testing
requirements per 3.2.9

Requirement	Sample #04	Sample #05	Sample #06
Actual load applied (lb)	5055.38	5052.18	5045.99
Specimen maintained load	PASS	PASS	PASS
Compliant	YES	YES	YES

4.7.2 Static Strength Testing of Y-Lanyards
requirements per 3.2.9

- a) Attach central connector intended to connect to harness and one connector on alternate specimen leg from 4.7.1 into the connectors of the test equipment.
- b) Subject specimen to force no less than 5,000lb (22.2kN) for a period no less than 1 minute. The time to reach this force shall be no less than 3 minutes to avoid dynamic effects.
- c) Compare results to 3.2.9 as required.

4.7.2 Static Strength Testing
requirements per 3.2.9

Requirement	Sample #04	Sample #05	Sample #06
Actual load applied (lb)	5046.37	5048.37	5046.43
Specimen maintained load	PASS	PASS	PASS
Compliant	YES	YES	YES

4.7.3 Static Strength Testing of Y-Lanyards
requirements per 3.2.9

- a) Attach central connector intended to connect to harness and both connectors into the connectors of the test equipment.
- b) Subject specimen to force no less than 5,000lb (22.2kN) for a period no less than 1 minute. The time to reach this force shall be no less than 3 minutes to avoid dynamic effects.
- c) Compare results to 3.2.9 as required.

4.7.3 Static Strength Testing
requirements per 3.2.9

Requirement	Sample #04	Sample #05	Sample #06
Actual load applied (lb)	5042.26	5036.29	5040.98
Specimen maintained load	PASS	PASS	PASS
Compliant	YES	YES	YES

Notes:



4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection

requirements per 3.2.10.1

- a) Measure length of specimen when tensioned at 20lb (9kg)
- b) Attach Specimen to load cell and test weight. Unused leg can be hung loosely not connected to test weight or load cell
- c) Attach quick release mechanism to test weight and raise weight.
- d) Release test weight.
- e) Record length of specimen while weight is still suspended and calculate elongation
- f) Compare with 3.2.10.1 as required

4.8 Dynamic Performance Testing

requirements per 3.2.10.1

Sample #01A		
Max Arrest Force (<1,800lb)	1273.44	lb
Average Arrest Force (<900lb for 6') (1,350lb for 12')	780.05	lb
Length of specimen under 20lb tension (Pre-test)	72.75	inches
Length of specimen under 20lb tension (Post-test)	109.5	inches
Permanent elongation (<48")	36.75	inches
Compliant	YES	

4.8 Dynamic Performance Testing

requirements per 3.2.10.1

Sample #02A		
Max Arrest Force (<1,800lb)	1332.44	lb
Average Arrest Force (<900lb for 6') (1,350lb for 12')	773.42	lb
Length of specimen under 20lb tension (Pre-test)	72.5	inches
Length of specimen under 20lb tension (Post-test)	109.5	inches
Permanent elongation (<48")	37	inches
Compliant	YES	

4.8 Dynamic Performance Testing

requirements per 3.2.10.1

Sample #03A		
Max Arrest Force (<1,800lb)	1290.41	lb
Average Arrest Force (<900lb for 6') (1,350lb for 12')	800.20	lb
Length of specimen under 20lb tension (Pre-test)	73	inches
Length of specimen under 20lb tension (Post-test)	110.75	inches
Permanent elongation (<48")	37.75	inches
Compliant	YES	

Notes:



4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection (Heat)

requirements per 4.13.3, 3.2.10.1

- a) Condition per 4.13.3 and measure length of specimen when tensioned at 20lb (9kg)
- b) Attach Specimen to load cell and test weight. Unused leg can be hung loosely not connected to test weight or load cell
- c) Attach quick release mechanism to test weight and raise weight.
- d) Release test weight.
- e) Record length of specimen while weight is still suspended and calculate elongation
- f) Compare with 3.2.10.1 as required

4.8 Dynamic Performance Testing (Heat)

requirements per 4.13.3, 3.2.10.1

Sample #13		
Max Arrest Force (<1,800lb)	1382.54	lb
Average Arrest Force (<900lb for 6') (1,350lb for 12')	779.90	lb
Length of specimen under 20lb tension (Pre-test)	72.25	inches
Length of specimen under 20lb tension (Post-test)	112.25	inches
Permanent elongation (<48")	40	inches
Compliant	YES	

4.8 Dynamic Performance Testing (Heat)

requirements per 4.13.3, 3.2.10.1

Sample #14		
Max Arrest Force (<1,800lb)	1297.11	lb
Average Arrest Force (<900lb for 6') (1,350lb for 12')	769.81	lb
Length of specimen under 20lb tension (Pre-test)	72.75	inches
Length of specimen under 20lb tension (Post-test)	112.25	inches
Permanent elongation (<48")	39.5	inches
Compliant	YES	

4.8 Dynamic Performance Testing (Heat)

requirements per 4.13.3, 3.2.10.1

Sample #15		
Max Arrest Force (<1,800lb)	1240.98	lb
Average Arrest Force (<900lb for 6') (1,350lb for 12')	764.45	lb
Length of specimen under 20lb tension (Pre-test)	72.25	inches
Length of specimen under 20lb tension (Post-test)	113.5	inches
Permanent elongation (<48")	41.25	inches
Compliant	YES	

Notes:



4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection (Cold) <i>requirements per 4.13.2, 3.2.10.1</i>
a) Condition per 4.13.2 and measure length of specimen when tensioned at 20lb (9kg) b) Attach Specimen to load cell and test weight. Unused leg can be hung loosely not connected to test weight or load cell c) Attach quick release mechanism to test weight and raise weight. d) Release test weight. e) Record length of specimen while weight is still suspended and calculate elongation f) Compare with 3.2.10.1 as required

4.8 Dynamic Performance Testing (Cold) <i>requirements per 4.13.2, 3.2.10.1</i>		
Sample #16		
Max Arrest Force (<1,800lb)	1342.19	lb
Average Arrest Force (<900lb for 6') (1,350lb for 12')	853.21	lb
Length of specimen under 20lb tension (Pre-test)	71.25	inches
Length of specimen under 20lb tension (Post-test)	103.5	inches
Permanent elongation (<48")	32.25	inches
Compliant	YES	

4.8 Dynamic Performance Testing (Cold) <i>requirements per 4.13.2, 3.2.10.1</i>		
Sample #17		
Max Arrest Force (<1,800lb)	1418.56	lb
Average Arrest Force (<900lb for 6') (1,350lb for 12')	875.73	lb
Length of specimen under 20lb tension (Pre-test)	72	inches
Length of specimen under 20lb tension (Post-test)	102.25	inches
Permanent elongation (<48")	30	inches
Compliant	YES	

4.8 Dynamic Performance Testing (Cold) <i>requirements per 4.13.2, 3.2.10.1</i>		
Sample #18		
Max Arrest Force (<1,800lb)	1467.52	lb
Average Arrest Force (<900lb for 6') (1,350lb for 12')	881.94	lb
Length of specimen under 20lb tension (Pre-test)	72	inches
Length of specimen under 20lb tension (Post-test)	103.25	inches
Permanent elongation (<48")	31.25	inches
Compliant	YES	

Notes:



4.8 Dynamic Performance Testing of Y-Lanyards - Single Connection (Wet)

requirements per 4.13.1, 3.2.10.1

- a) Condition per 4.13.1 and measure length of specimen when tensioned at 20lb (9kg)
- b) Attach Specimen to load cell and test weight. Unused leg can be hung loosely not connected to test weight or load cell
- c) Attach quick release mechanism to test weight and raise weight.
- d) Release test weight.
- e) Record length of specimen while weight is still suspended and calculate elongation
- f) Compare with 3.2.10.1 as required

4.8 Dynamic Performance Testing (Wet)

requirements per 4.13.1, 3.2.10.1

Sample #19		
Max Arrest Force (<1,800lb)	1263.21	lb
Average Arrest Force (<900lb for 6') (1,350lb for 12')	804.95	lb
Length of specimen under 20lb tension (Pre-test)	73.25	inches
Length of specimen under 20lb tension (Post-test)	108.5	inches
Permanent elongation (<48")	32.25	inches
Compliant	YES	

4.8 Dynamic Performance Testing (Wet)

requirements per 4.13.1, 3.2.10.1

Sample #20		
Max Arrest Force (<1,800lb)	1354.46	lb
Average Arrest Force (<900lb for 6') (1,350lb for 12')	831.91	lb
Length of specimen under 20lb tension (Pre-test)	70.75	inches
Length of specimen under 20lb tension (Post-test)	108	inches
Permanent elongation (<48")	37.25	inches
Compliant	YES	

4.8 Dynamic Performance Testing (Wet)

requirements per 4.13.1, 3.2.10.1

Sample #21		
Max Arrest Force (<1,800lb)	1306.11	lb
Average Arrest Force (<900lb for 6') (1,350lb for 12')	807.86	lb
Length of specimen under 20lb tension (Pre-test)	72.75	inches
Length of specimen under 20lb tension (Post-test)	106.5	inches
Permanent elongation (<48")	33.75	inches
Compliant	YES	

Notes:



4.9 Dynamic Performance Testing of Y-Lanyard - Dual Connection

requirements per 3.2.10.2

- a) Attach both ends of specimen to load cell and test weight
- b) Attach quick release mechanism to test weight and raise weight.
- c) Release test weight
- d) Compare results to 3.2.10.2 as required

4.9 Dynamic Performance Testing

requirements per 3.2.10.2

Requirement	Sample #04A	Sample #05A	Sample #06A
Max Arrest Force (<1,800lb)	1458.00	1351.95	1371.08
Compliant	YES	YES	YES

4.10 Dynamic Performance Testing of Y-Lanyards - Hip Test

requirements per 3.2.10.3

- a) Attach one end of specimen to test structure, the harness connector to the test weight and the unused leg to the connector on the side of the test weight
- b) Attach nylon keeper to quick release mechanism to the test weight and raise weight
- c) Release test weight
- d) Compare test results to 3.2.10.3 as required. If failed, must include warning label per 5.2.2

4.10 Dynamic Performance Testing*

requirements per 3.2.10.3

Requirement	Sample #07	Sample #08	Sample #09
Nylon keeper intact	BREAK	BREAK	BREAK
Compliant	YES	YES	YES

Notes:

*: Per ANSI/ASSE Z359.13-2013, 3.2.10.3:

“If the energy absorbing lanyard breaks the nylon keeper during the test, the energy absorbing lanyard shall include a warning label on each lanyard leg according to 5.2.2.”

5.1	General Marking Requirements	
5.1.1	Markings shall be in English	PASS
5.1.2	The legibility and attachment of required markings shall endure for the life of the component, subsystem or system being marked. When pressure sensitive labels are used, they shall comply with the applicable provision of UL 969-89, Marking and Labeling Systems	PASS
5.1.3	Equipment shall be marked with the following: -Part number and model designation; -Year of manufacture; -Manufacturer's name or logo; -Capacity rating; -Serial number; -Standard number; -Warning to follow the manufacturer's instructions included with the equipment at time of shipment from the manufacturer.	PASS
5.2	Specific Marking Retirements	
5.2.1	Personal Energy Absorbers and Energy Absorbing Lanyards. Personal energy absorbers and energy absorbing lanyards shall be marked to identify: -The fiber used in the material of construction; -The length; -The need to avoid contact with sharp edges and abrasive surfaces; -The need to make only compatible connections; -The maximum elongation; -Restriction, if any, on the types of components, subsystems or systems with which the personal energy absorber is designed to be used; -The average arrest force, maximum free fall distance and capacity of the personal energy absorber in a separate label identical in size, color, and content; -6ft FF personal energy absorbers shall be in black print on a contrasting white background; -12ft FF personal energy absorbers shall be in white print on a contrasting black background.	PASS
5.2.2	Y-Lanyard. In addition to 5.2.1, Y-lanyards that fail the Dynamic Hip Test detailed in 3.2.10, must include a warning label on both connecting ends of the lanyard specifically directing users how to safely store the unused leg of the lanyard.	PASS

Notes:



5.3	General Instruction Requirements	
5.3.1	Instructions shall be provided to the user, printed in English, and affixed to the equipment at the time of shipment from the manufacturer.	PASS
5.3.2	<p>Instructions shall contain the following information:</p> <ul style="list-style-type: none"> -A statement that the manufacturer’s instructions shall be provided to the users; -Manufacturer’s name, address and telephone number; -Manufacturer’s part number and model designation for the equipment; -Intended use and purpose of the equipment; -Proper method of use and limitations on use of the equipment; -Illustrations showing locations of markings on the equipment; -Reproduction of printed information on all markings; -Inspection procedures required to assure the equipment is in servicable condition and operating correctly; -Anchorage requirements; -An illustration of how to calculate free fall distances; -Procedures for cleaning, maintenance and storage; -Reference to the ANSI/ASSE Z359.12, Personal Energy Absorbers and Energy Absorbing Lanyards, standards and applicable regulations governing occupational safety. 	PASS
5.3.3	Instructions shall require that only the equipment manufacturer, or persons or entities authorized in writing by the manufacturer, shall make repairs to the equipment.	PASS
5.3.4	Instruction shall require the user to remove equipment from field service if it has been subjected to the forces of arresting a fall.	PASS
5.4	Specific Instruction Requirements	
5.4.1	<p>Personal Energy Absorbers. In addition to general instruction requirements, written instructions for personal energy absorbers shall include:</p> <ul style="list-style-type: none"> -The material used in personal energy absorber construction; -The need to make only compatible connections and limitations of compatability; -Proper method of coupling the personal energy absorberto adjacent components of the system; -The maximum arrest force of the personal energy absorbers when dynamically tested in accordance with the requirements of this standard; -The maximum elongation of the personal energy absorber when dynamically tested in accordance with the requirements of this standard; -A reference chart that indicates the deployment distance of the personal energy absorber according to the user weight and free fall distance; -A statement that indicates information necessary in designing fall production systems shall be made available from the manufacturer. Manufacturers may provide designers of fall protection systems a representative graph(s) of the time history plot of the loading from a drop test. 	PASS

