

TEST REPORT

2020EP1337

DATE OF RECEPTION

09/06/2020

DATE TESTS

Starting: 10/06/2020

Ending: 12/06/2020

APPLICANT

PORTWEST
WESTPORT BUSINESS AND TECHNOLOGY PARK
WESTPORT
CO MAYO

Att. *Kim O'Sullivan

IDENTIFICATION AND DESCRIPTION OF SAMPLES

REFERENCES

PW360

TESTS CARRIED OUT

- GARMENT DESIGN REQUIREMENTS.
- DETERMINATION OF THE AREAS OF VISIBLE MATERIALS.
- ERGONOMICS.



RESULTS

GARMENT DESIGN REQUIREMENTS

REFERENCE

PW360

STANDARD

ANSI/ISEA 107-2015, section 6

DESIGN REQUIREMENTS

6.2.1 General

HVSA shall incorporate the minimum areas of materials specified in Table 1 of the standard.	Background material 0,88 m ² Reflective material 0,24 m ²	PASS
Accessories shall incorporate the minimum areas of visible materials specified in Table 2 of the standard.	---	N/A
HVSA shall be designed to permit maximum visibility of the wearer. The most effective deployment of high-visibility materials on a garment is distribution at the ends of the limbs to mark the human form and accentuate human motion.	---	PASS

6.2.2 Type O HVSA

Type O Class 1 HVSA shall utilize at least one horizontal band of retroreflective or combined-performance material around the torso, and shall include at least the minimum amounts of retroreflective or combined-performance material in the shoulder area if encircling bands are not present on sleeves.	---	N/A
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6.2.3 Type R HVSA

Type R Class 2 HVSA shall utilize at least one horizontal band of retroreflective or combined-performance material around the torso, and shall include at least the minimum amounts of retroreflective or combined-performance material in the shoulder area if encircling bands are not present on sleeves.	---	N/A
Type R Class 3 HVSA shall utilize one or more horizontal bands of retroreflective or combined-performance material around the torso, and shall include one or more encircling bands on the sleeves.	---	PASS

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RESULTS

DESIGN REQUIREMENTS

6.2.4 Type P HVSA

Type P Class 2 HVSA shall utilize at least one horizontal band of retroreflective or combined-performance material around the torso, and shall include at least the minimum amounts of retroreflective or combined-performance material in the shoulder area if encircling bands are not present on sleeves.	---	N/A
Type P Class 3 HVSA shall utilize at least one horizontal band of retroreflective or combined-performance material around the torso, and shall include one or more encircling bands on the sleeves.	---	N/A

6.3 Retroreflective and combined-performance materials

The width of the retroreflective or combined-performance materials incorporated into the HVSA shall not be less than the dimensions specified in Table 1 of the standard.	60 mm	PASS
Retroreflective or combined-performance material may be utilized in a split-trim design. The split-trim design shall consist of two stripes of retroreflective or combined-performance material with minimum width of 25 mm (1 in.) that are positioned as a parallel pair on compliant fluorescent background material of the same or contrasting color, or on a non-compliant material of any color. The two paired stripes of retroreflective or combined-performance material shall not be separated by more than 50 mm (1.97 in.)	---	PASS
Whenever multiple bands are placed on the HVSA, the minimum distance between bands of retroreflective or combined-performance material shall be at least equal to the width of the band.	---	PASS

6.3.2 Placement of retroreflective and combined-performance material

Horizontal retroreflective or combined-performance materials shall be placed at least 50 mm (1.97 in.) above the bottom of the hem of the torso, long sleeve and long pant HVSA styles.	> 50 mm	PASS
Horizontal retroreflective or combined-performance materials placed on arms or legs shall encircle them in such a manner to provide 360° visibility of the wearer at all viewing angles in a horizontal plane.	---	PASS
If upper bands of retroreflective or combined-performance materials are placed on long sleeves, the bands shall be placed between the elbow and the shoulder. Lower bands can be placed between the elbow and wrist but shall be at least 50 mm (1.97 in.) above the bottom of the sleeve.	---	PASS

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RESULTS

DESIGN REQUIREMENTS

6.3.3 Gaps

Gaps in retroreflective, combined-performance, and background materials shall not be more than 50 mm (1.97 in.) horizontally to enable fastening or for seam allowance. Retroreflective or combined-performance materials shall not count against the width of this gap.	< 50 mm	PASS
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6.3.4 360° Visibility

Retroreflective or combined-performance and background materials for all garment types and performance classes and headwear shall be positioned on items in such a way as to provide 360° visibility of the wearer at all viewing angles in a horizontal plane.	---	PASS
High-visibility materials on accessory items shall be positioned to maximize outward visibility, with the understanding that 360° visibility may not be possible with some designs.	---	N/A

6.3.5 Materials use and balance of design

Garments shall be balanced in design so that not less than 40% of the minimum required amount of retroreflective or combined-performance and background materials specified in Table 1 is present on both the front and the back when laid flat.	---	PASS
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6.3.6 Shoulder area

HVSA without retroreflective or combined-performance material that encircles the arm shall have a minimum of 150 cm ² (23.3 in. ²) of retroreflective material or combined-performance material in the shoulder area to provide 180° visibility of the wearer.	---	N/A
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6.3.7 Optional accessories

Background materials and retroreflective or combined-performance materials incorporated into optional accessories shall not be less than the dimensions specified in Table 2 of the standard.	---	N/A
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Remark

N/A: not applicable

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RESULTS

DETERMINATION OF THE AREAS OF VISIBLE MATERIALS

Standard

ANSI/ISEA 107-2015 section 6.2

Test uncertainty $\pm 1,5 \cdot 10^{-4} \text{m}^2$

Reference	Size	Background material (m ²)	Retroreflective material (m ²)	Combined material (m ²)	Reflective Material Width (mm)
PW360	SMALL	0,88	0,24	---	60

GARMENT TYPE R

GARMENT CLASS 3

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RESULTS

Minimal areas of visible material in m²

Table 1

Garment type	Performance Class	Background material	Retroreflective or combined performance materials	Minimum width reflective material
Type-O Off-road and Non-Roadway Use	Class 1	0.14 m ²	0.10 m ²	25 mm
Type-R Roadway and Temporary Traffic Control Zones	Class 2 ⁽¹⁾ Class 3 ⁽²⁾	0.50 m ² 0.80 m ²	0.13 m ² 0.20 m ²	25mm(1in.)## 25mm(1in.)##
⁽¹⁾ For the smallest size offered in Type R, Performance Class 2, a minimum of 0.35 m ² of background material may be used to accommodate small-sized workers. All subsequent larger sizes must use 0.50 m ² .				
⁽²⁾ For the smallest size offered in Type R, Performance Class 3, a minimum of 0.65 m ² of background material may be used to accommodate small-sized workers. All subsequent larger sizes must use 0.80 m ² .				
Type-P Emergency and Incident Responders and Law Enforcement Personnel	Class 2 Class 3	0.29 m ² 0.50 m ²	0.13 m ² 0.20 m ²	25mm(1in.)## 25mm(1in.)##
Supplemental Items# Pants, Overalls, Shorts, Rain Pants and Gaiters	Class E	0.30 m ²	0.07 m ²	25mm(1in.)##
# When a Supplemental Class E item is worn with Performance Class 2 or 3, the overall classification for the ensemble shall be Performance Class 3.				
## For use with split-trim designs (See Section 6.3.1.2)				
NOTE: Combined-performance materials can be counted toward the minimum area requirements for background material specified in Table 1.				

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RESULTS

ERGONOMICS

Standard

EN ISO 13688:2013

Reference

PW360

Test date

12/06/2020

Remark

The ergonomics verification has been performed by physical dimensions commensurate with the size found.

According to the inspection of the garment, this fulfills ergonomics requirement.

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Lucia Martinez
Head of PPE and Ballistics department

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