

## NOTICE



This document has been examined by the Technical Authority for content and confirmed that it has no references to controlled goods.

## AVIS

Le présent document a été examiné par l'autorité technique et ne vise pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

# SPECIFICATION FOR HAT, SUN, TEMPERATE WEATHER, COMBAT (HSTW), CADPAT™ TEMPERATE WOODLANDS (TW)

**NSN 8415-21-914-5176 A/A**

**SPECIFICATION  
FOR  
HAT, SUN, TEMPERATE WEATHER,  
COMBAT (HSTW), CADPAT™ TEMPERATE WOODLANDS (TW)**

**NSN 8415-21-914-5176 A/A**

**1 SCOPE**

1.1 **Scope.** This specification covers the materials, design and construction requirements for the Hat, Sun, Temperate Weather, Combat (HSTW).

1.2 **Intended Use.** The HSTW is intended to provide soldiers with protection from sun in temperate weather conditions.

**2 APPLICABLE DOCUMENTS**

2.1 The following documents form part of this Specification to the extent specified herein. Unless otherwise specified, the issue or amendment of documents effective for a particular contract must be those in effect on the date of the invitation to tender or the contract.

**2.2 Government Documents.**

2.2.1 The documents listed below will be provided by Canada. Additional copies may be obtained from the address below:

Department of National Defence (NDHQ)  
Major General George R. Pearkes Building  
101 Colonel By Drive  
Ottawa, Ontario K1A 0K2  
Attention: DSCO 4-7-5

**SPECIFICATIONS AND STANDARDS**

D-80-001-023/SF-001	Cloth, Twist, Nylon/Cotton, Lightweight, 170g/m <sup>2</sup>
D-80-001-028/SF-001	Cord, Plaited, Spun Synthetic Fibre, Types I and II
D-80-001-055/SF-001	Label, Clothing and Equipment

2.2.2 **Annexes.** The documents listed below will be provided by the Canada as Annexes.

Annex C	DSSPM 2-2-80-059 Cloth, Coated, Nylon/Taffeta-Polyurethane
Annex D	DSSPM 3-6-80-001 Specification for CADPAT™ [Canadian Disruptive Pattern]

Annex E

CFTPO-HATS Canadian Forces Transportation Packaging  
Order

**2.3 Other Publications.** Documents listed below as specifications are not provided by Canada and may be purchased from the sources shown:

**Canadian General Standards Board**

L'Esplanade Laurier Building  
140 O'Connor Street  
Tower East, 6th floor  
Ottawa, ON  
K1A 0S5  
Telephone: 1-800-665-2472  
E-mail: [ncr.cgsb-ongc@pwgsc-tpsgc.gc.ca](mailto:ncr.cgsb-ongc@pwgsc-tpsgc.gc.ca)

CGSB Website: <https://www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-eng.html>

CAN/CGSB-4.2	Textile Test Methods
CAN/CGSB-4.131-93	Cotton-Covered or Polyester-Covered Polyester Thread
CAN/CGSB-4.139-94	Polyester Staple Thread
CAN/CGSB-86.1-2003	Care Labelling of Textiles

**ISO International Standards  
International Organization for Standardization**

ISO Central Secretariat  
Chemin de Blandonnet 8  
CP 401 - 1214 Vernier, Geneva  
Switzerland  
Telephone: +41 22 749 01 11  
E-mail: [central@iso.org](mailto:central@iso.org)  
Website: <http://www.iso.org/iso/home.html>

or  
Standards Council of Canada  
600-55 Metcalfe Street  
Ottawa, Ontario  
K1P 6L5 Canada  
Telephone: 613-238-3222  
Email: [info@scc.ca](mailto:info@scc.ca)  
Website: <https://www.scc.ca/en>

ISO 4915:1991	Textiles – Stitch Types - Classification and Terminology
ISO 4916:1991	Textiles – Seam Types - Classification and Terminology

**2.4 Figures.** The following Figures are included in this document as direction for the design and measurements. Figures are not to scale.

Figure 1	Front and Back
Figure 2	Front and Back Details
Figure 3	Side View
Figure 4	Inside Details

## 2.5 Sealed Samples.

2.5.1 Sealed Samples are made available to the bidders and the contractor as a guide to production. The sealed pattern may not meet the technical requirements in all respects and must be used for guidance only during production. The sealed pattern numbers are:

DSSPM 109-99 Hat, Sun, Temperate Weather, Combat, CADPAT™ TW\*  
(provided for construction and design guidance only)

DSSPM 281-01 Canadian Average Green in CADPAT™ (TW)

2.5.2 NOTE: The following are deviations from sealed sample DSSPM 109-99. Sealed sample is provided for construction and design guidance only. The following changes have been made to the design of the HSTW.

- a. Brim width has been shortened to 1-3/4" (4.4 cm) wide;
- b. Webbing is only applied to accommodate reversible cat's eyes;
- c. Neck flap is eliminated from storage pouch; and
- d. Loop tape eliminated from sweatband.

2.6 **Paper Patterns.** Paper patterns for the manufacture of the Hat, Sun, Temperate Weather, Combat will be provided by Canada as Style Code **HSW13** and must be used to manufacture the hats.

## 2.7 Order of Precedence.

2.7.1 In the event of discrepancies between the documents referenced herein and the contents of this specification, the contents of this specification must be considered a superseding requirement.

2.7.2 In the event of inconsistency within the specification, the Contracting Authority must be contacted for clarification.

2.7.3 In the event of inconsistency in contract documents such as contract, specification, and sealed patterns, the order of precedence must be contract, specification, and sealed patterns.

2.7.4 Nothing in this document supersedes applicable laws and regulations, unless a specific exemption has been obtained.

## 3 REQUIREMENTS

3.1 **Sealed Samples.** A sealed sample will be supplied to the successful bidder. The sealed sample must constitute the standard regarding any properties not specified in the Specification.

3.2 **Definition of Product.** The Hat, Sun, Temperate Weather, Combat must be designed in accordance with Sealed Sample DSSPM 109-99 (with the exceptions outlined in para 2.5) and have the following design features:

- a. Brim around entire circumference of sidewall;
- b. Two (2) black screened vents and retention washers on each side of hat;
- c. Cord chinstrap with toggle;
- d. Concealable phosphorescent tabs (Cat's-eyes); and
- e. Webbing bar tacked at the back of the hatband for the attachment of camouflage materials.

3.2.1 Unless otherwise indicated, all components of the garment must conform to the applicable figures. Hat circumference dimensions with corresponding sizes are shown in the Scale of Measurements in Table I.

### 3.3 **Materials.**

3.3.1 **Shell Material.** The shell material must be Cloth, Twist, Nylon/Cotton, Lightweight, 170 g/m<sup>2</sup> conforming to Type I (CADPAT™ TW) of D-80-001-023/SF-001.

#### 3.3.2 **Brim Interlining Components.**

3.3.2.1 The brim interlining must consist of three layers; one layer of adhesive web, one layer of coated nylon, and one layer of stiffener.

3.3.2.1.1 **Adhesive Web.** The adhesive web must be a polyamide web having a weight of 20 g/m<sup>2</sup>. This layer of adhesive web must be in between the top layer of shell and the coated nylon.

3.3.2.1.2 **Coated Nylon.** The coated-nylon material must be cloth, coated, nylon taffeta-polyurethane conforming to DSSPM 2-2-80-059. The colour must be white.

3.3.2.1.3 **Stiffener.** The stiffener interlining must be a cross laid base, binder bonded material of 100% polyester. The colour must be white. The weight must be 115g/m<sup>2</sup> (+/- 10%). The average thickness must be 0.95 mm.

3.3.3 **Sweatband Interlining Components.** The sweatband interlinings must consist of two layers; a sweat absorption layer and a cover layer.

3.3.3.1 **Sweat Absorption Layer.** The sweat absorption layer must be a non-woven, non-fusible felt material. It must be white and must consist of polyester with an acrylic binder. The weight must be 142 g/m<sup>2</sup> (+/- 10%). The average thickness must be 1.10 mm (+/- 10%).

3.3.3.2 **Cover Layer.** The cover layer must be white and fibre content of 80 to 90% polyester and 10 to 20% rayon. The material must be 36 to 42 g/m<sup>2</sup>.

3.3.4 **Chinstrap.** The chinstrap cording must be Cord, Plaited, Spun Synthetic Fibre conforming to Type I (lightweight) of D-80-001-028/SF-001. The colour must Canadian Average Green in accordance with Sealed Pattern DSSPM 281-01.

3.3.5 **Webbing.** The webbing must be spun polyester, double jacquard weave, 19 g/m (+/- 5%) in weight, the warp ends must be 192 warp yarns per centimetre with 19 weft yarns per

centimetre. Thickness must be 1.7mm (+/- 10%) and the width must be 9/16-inch (14.3 mm). The colour must be Canadian Average Green.

**3.3.6 Screened Vents and Retention Washers.** The screened vents and retention washers must be brass and must have a dull, black, chemical finish. The screened vent must have an outside rim diameter of 9/16-inch (14.3 mm), and an outside screening diameter of 7/16-inch (11.1 mm).

**3.3.7 Toggle.** The toggle must be a black, cylindrical, round tipped, plastic type with a non-metallic tension adjustment mechanism.

**3.3.8 Thread (for Seaming and Stitching).** The thread must be polyester staple conforming to CAN/CGSB-4.139-94, Size 50, R50 TEX, or polyester, cotton-covered or polyester-covered conforming to CAN/CGSB-4.131-93 class A or B, Size 75, R50 TEX. Thread colour must be Canadian Average Green.

**3.3.9 Luminescent Material.** The luminescent material must be SPOT-LITE® GLO Film, Series 4100 CLL flexible plastic-backed film with pressure sensitive acrylic adhesive and 90 pound liner. This material is available from Hanovia Incorporated (6 Evans Street, Fairfield, New Jersey 07004, Phone (973) 651-5510 or Fax (973) 651-5550)).

**3.3.10 Labels.** The label must be Type I (Label, Woven, Coated and Printed) in accordance with D-80-001-055/SF-001.

### 3.4 Cutting

**3.4.1** Hats must be cut using supplied patterns. Patterns include seam allowances but do not include make-up allowance. The contractor must be responsible for any change, which may be required for make-up allowance to suit production methods, but the design, grading, or requirements specified herein must not be changed.

**3.4.2** The shell parts of each hat must be cut in the direction of the warp as indicated on the pattern drawings.

**3.4.3** The shell parts of each hat must be cut from the same print run of material with the exception of the sweatband, the inside crown binding, and the inside pocket pieces.

### 3.5 Sewing

**3.5.1** All stitching and seams must be in accordance with ISO 4915:1991 and ISO 4916:1991.

**3.5.2** Seams must be a minimum of 3/8-inch (9.5 mm) wide unless otherwise specified.

**3.5.3** All stitching must be lockstitch Type 301 with a minimum of 9 and maximum of 11 stitches per inch (3.5-4.3 stitches/cm). The serging may be done using any of the 500 series stitches and must have a minimum of 10 cover stitches per inch (4.0 stitches/cm).

3.5.4 Bar tacks must be 3/8-inch (9.5 mm) to 7/16-inch (11 mm) long with 22-24 stitches. They must not exceed a width of 3/32-inch (2.4 mm).

3.5.5 The tension of the needle and bobbin threads must be adjusted to ensure proper stitching.

### 3.6 Construction

3.6.1 **Brim Construction.** See Figure 4.

3.6.1.1 The hat brim must be constructed of the following layers from top to bottom: 1 layer of shell material on the top, 1 layer of adhesive web, 1 layer of coated nylon, 1 layer of stiffener, and 1 layer of shell on the bottom.

3.6.1.2 The top shell layer and the coated-nylon layer must be fused together with the adhesive web. All layers must be placed together so that they are flush at the outside brim edge. The brim topstitching must have lines of stitching running parallel to the circumference of the brim. The stitching must be evenly spaced at 1/4-inch (6.4 mm) +/- 1/16-inch (+/- 2 mm) and may be either separate rings or a spiral pattern.

3.6.1.3 The outside edge of the brim must be bound with bias cut shell material to a finished width of 3/8-inch (9.5 mm). The binding must have a clean finish with no raw edges exposed. The binding must start and finish at the centre back, with the turned end of the binding lapped of a minimum of 1/2-inch (12.5 mm) on the opposite end of the binding.

3.6.2 **Hatband and Sidewall Assembly.** The hatband must be applied by folding and edge stitching 1/16-inch (2 mm), +/- 1/16-inch (+/- 2 mm) the top edge of the hatband to the outside sidewall.

3.6.3 **Webbing Attachment.** The webbing must be placed on the centre back of the hat, and hatband. The hatband has a mark indicating where the webbing must be anchored. At each mark, stitch through the webbing, the hatband, and the sidewall with a straight stitch, 3 times. Stitching must not extend past webbing. Centre of the webbing must be on the centre back of the hat. Webbing must not lay flat on the band. Care must be taken to allow ease between the webbing bar tacking. There must be 1/8-inch (3.2 mm) to 1/4-inch (6.4 mm) ease allowed per loop. The phosphorescent 'Cat's-eye' assemblies must be fed onto the webbing prior to closure of the back seam.

3.6.4 **Phosphorescent Tab Loop Assemblies (Cat's Eye).** See Figure 2.

3.6.4.1 Each loop must be constructed by folding each long edge in 3/8-inch (9.5 mm). One raw end of the loop must be folded up to within 1/4-inch (6.4 mm) of the other raw end, wrong sides together. The longer end must be folded down over the other raw edge, 1/4-inch (6.4 mm). The long edges must be topstitched 1/16-inch (1.5 mm) gauge.

3.6.4.2 The phosphorescent strips must have finished dimensions of 1-inch (2.5 cm) wide by 1/2-inch (1.3 cm) long. The strips must be placed on top of the raw edges of the loops 1/8-inch (3.2 mm) from the folded edge. The phosphorescent strips must be edge stitched to the shell loops in a box formation. Thread must be tone to tone with the phosphorescent strips.

3.6.4.3 The loop must be closed by folding it in half and securely edge stitching the short ends together. The loops must finish in accordance with the dimensions shown at Figure 2. Loops must be fed onto the webbing. The loops must function such that they can be turned by hand into the desired position and not roll around the webbing freely.

3.6.4.4 The centre back seams of the inside and outside sidewalls must be stitched 3/8-inch (9.5 mm) gauge and finished with the seam allowances facing each other. The webbing ends must be secured into the centre back seam.

3.6.5 **Screened Vents Attachment.** Two screened vents must be applied to each side of the hat. They must be located in accordance with the markings on the pattern drawings. Care must be taken to affix them in accordance with the manufacturer's instructions and leaving no raw edges exposed. The vents must remain secure for the life of the hat.

3.6.6 **Inside Crown Pocket.** The raw edges of the inside pocket pieces must be turned under twice and topstitched at 1/4-inch (6.4 mm) gauge. The pocket pieces must be lapped over each other to form the inside crown.

3.6.6.1 The outer pocket edges, crown edge and top sidewall edges must be stitched together and the raw edges must be bias bound so that no raw edges are exposed.

3.6.6.2 The crown must be edge stitched through all layers from the top.

### 3.6.7 **Sweatband.**

3.6.7.1 The sweatband must consist of three layers. The outer layer must be shell material, the middle layer must be a sweat absorption interlining, and the next layer must be a cover interlining. The top edge of the shell layer must be serged and folded over the top edges of the interlinings 3/8-inch (9.5 mm). The folded edge must be edge stitched 1/16-inch (1.5 mm) gauge, catching all layers of the sweatband. The bottom edge of the shell layer must be folded over the bottom edges of the interlinings 3/8-inch (9.5 mm). The folded edge must be edge stitched 1/16-inch (2 mm) gauge, catching all layers of the sweatband.

3.6.7.2 When finished, the right side back edge must be folded under and lapped over the left back edge and topstitched. Care must be taken to overlap the right side back approximately 3/4-inch (19 mm) from the centre back to reduce bulk.

3.6.7.3 The bottom edges of the sidewall assembly must be stitched to the inside edge brim assembly at 3/8-inch (9.5 mm) gauge.

3.6.7.4 The bottom long edge of the sweatband must be edge stitched to the sidewall and brim assembly seam allowance, ensuring that the ends of the chinstrap are secured in the stitching. The finished length of cording for the chinstrap must be 30-inches (76 cm) for all sizes.

3.6.7.5 The bottom edge of the outside hatband must be edge stitched through all layers ensuring that the sweatband is facing in and up.

3.6.7.6 To secure the sweatband, single bar tacks must be placed evenly for a total of seven bar tacks around the sweatband. The stitching must be done through all layers of the hatband and



sweatband. Care must be taken to ensure that the sweatband is in the appropriate position while stitching through all layers.

3.6.7.7 The toggle must be placed on the chinstrap ensuring that it is secured by knotting the end of the cording.

3.7 **Marking and Label Information.** The following marking and care symbols must be printed legibly and indelibly with black printing on a coloured label (Canadian Average Green) and in accordance with specification D-80-001-055/SF-001, Type I. The fabric must be nylon, acetate, or polyester. The label must be nominally 2-inches (5.0 cm) long by 1-1/4 inches (3.2 cm) wide. See Figure 4 for placement of the label (marked identification label on figure).

- a. NATO Stock Number (NSN) that is specific for each size. NSN's will be designated in the contract by item and size;
- b. Size (twice the size of all other lettering);
- c. Contractor's identification or CA number;
- d. Contract Number;
- e. Month and year of manufacture (MM/YYYY);
- f. Space to write personal identification;
- g. Care Symbols in accordance with CAN/CGSB-86.1-2003 as follows:
  1. Washing Symbol 6;
  2. Bleaching Symbol 3;
  3. Drying Symbol 2; and
  4. Ironing/Pressing Symbol 5

Example:



3.7.1 **Hang Tags.** No brand or product names must be permanently attached to the garment in any way. However, brand hang tags that are easily removed without causing damage to the product may be acceptable at no cost to the Crown, provided that approval for text and use has been granted by the Contracting Authority.

3.8 **Finishing.** Following assembly, the hat must be steamed to remove wrinkles and to provide a uniform finish on the hat.

#### 4. QUALITY CONTROL/INSPECTION

4.1 Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Contractors may utilize their own or any other inspection facility acceptable to Canada or its designated representative. Canada reserves the right to perform any of the inspections specified herein, where such inspections are deemed necessary to ensure material and services conform to prescribed requirements. The contractor is responsible for ensuring that all material or services submitted to Canada for acceptance comply with all requirements of the contract.

#### 5. PACKAGING

5.1 Packaging and packing. Unless otherwise specified, packaging and packing as well as delivery shall be in accordance with the terms of the contract.

5.2 The hat must be individually packaged in accordance with CFPTO-HATS. The abbreviated nomenclature for the label on the bags must be as follows:

Hat, Sun, CADPAT™ (TW) / Chapeau De Soleil, DcamC<sup>MC</sup> (RBT)

#### 6. DEFINITION OF TERMS

6.1 **Master Sealed Sample.** The master sealed sample is the only authorized prototype of the item to be produced and is held by Canada.

6.2 **Sealed Sample.** The sealed sample is a duplicate of the master sealed sample and is available to the manufacturer to be used as a guide in production.

6.3 **Quality Assurance Authority.** The quality assurance Authority is Canada's agency responsible for ensuring that the material and services supplied by the contractor perform to the specified requirements. The Quality Assurance Authority will be specified in the contract.

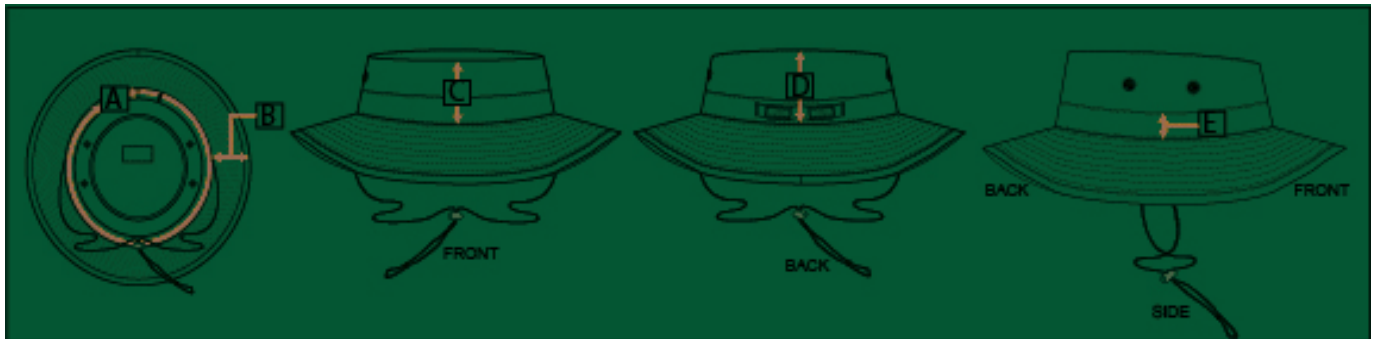
6.4 **Safety Health and Environmental Concerns.** The production of a product to this specification, or the evaluation of a product to this specification, may require the use of materials and/or equipment that could be hazardous. This specification does not purport to address all safety, health and environmental concerns, if any associated with its use. It is the responsibility of the user of this specification to establish appropriate safety, health and environmental practices and to determine the applicability of regulatory limitations prior to use.

### TABLE I: SCALE OF MEASUREMENTS

Annex B - 10/15

This document does not contain controlled goods. / Cette documentation ne contient pas de marchandises contrôlées.

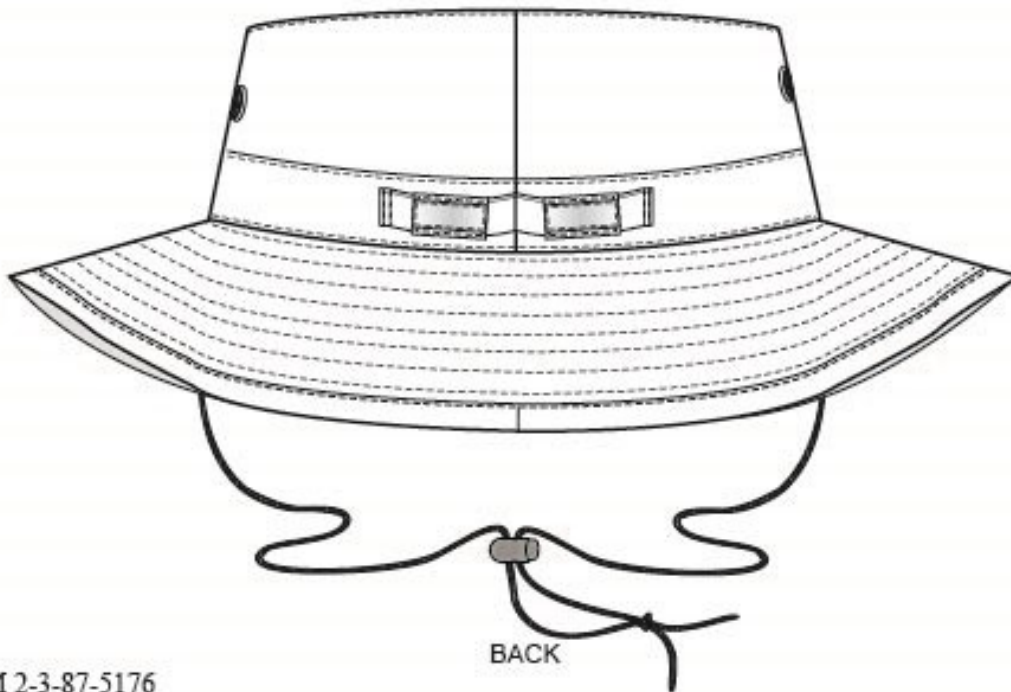
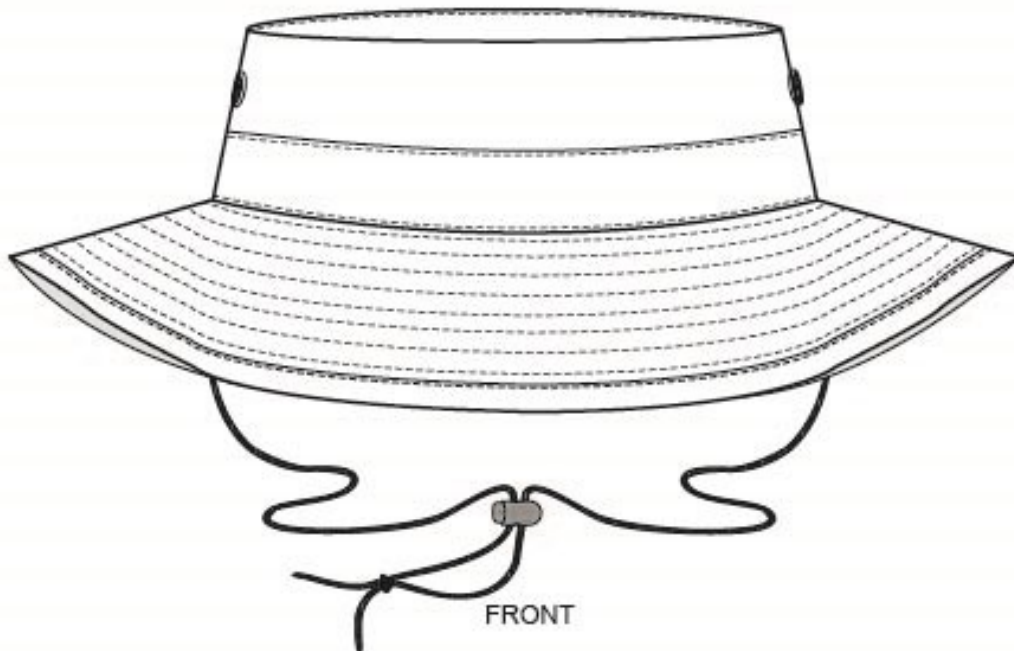
REF	SIZE												TOL
	6-1/2	6-5/8	6-3/4	6-7/8	7	7-1/8	7-1/4	7-3/8	7-1/2	7-5/8	7-3/4	7-7/8	
<b>A</b>	20-1/2	20-7/8	21-1/4	21-5/8	22	22-3/8	22-3/4	23-1/8	23-1/2	23-7/8	24-1/4	24-7/8	N/A
<b>B</b>	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	1-3/4	+1/8
<b>C</b>	2-3/4	2-3/4	2-3/4	2-3/4	2-3/4	2-3/4	2-3/4	2-3/4	2-3/4	2-3/4	2-3/4	2-3/4	+1/8
<b>D</b>	3-1/2	3-1/2	3-1/2	3-1/2	3-1/2	3-1/2	3-1/2	3-1/2	3-1/2	3-1/2	3-1/2	3-1/2	+1/8
<b>E</b>	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	1-1/4	+1/8



**TABLE II - NSNS AND SIZES**

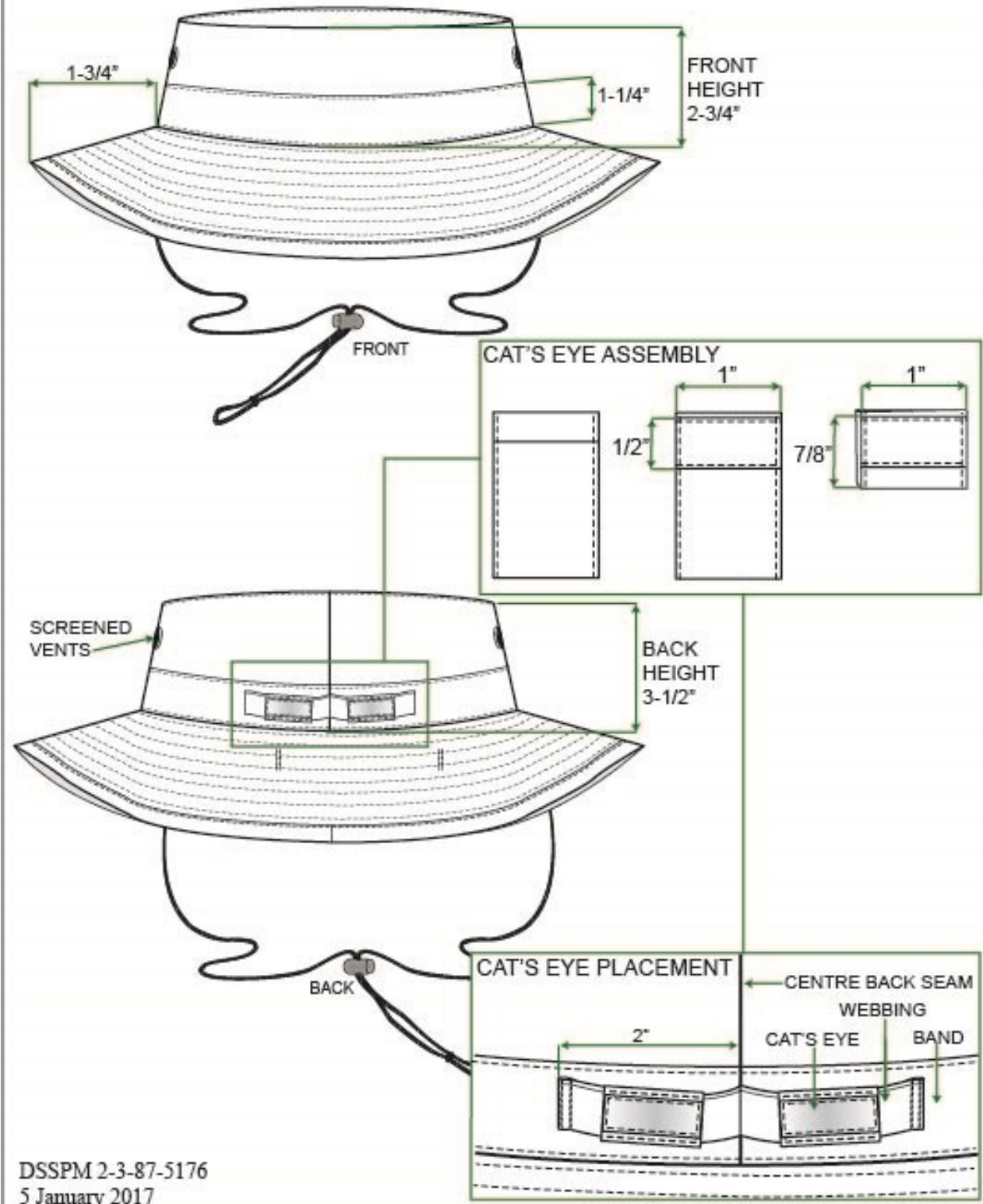
NSN	Nomenclature	Size
8415-21-914-5176	HAT, SUN, TEMPERATE WEATHER, COMBAT, CADPAT TW	A/A
8415-21-914-5177	HAT, SUN, TEMPERATE WEATHER, COMBAT, CADPAT TW	6 1/2
8415-21-914-5178	HAT, SUN, TEMPERATE WEATHER, COMBAT, CADPAT TW	6 5/8
8415-21-914-5179	HAT, SUN, TEMPERATE WEATHER, COMBAT, CADPAT TW	6 3/4
8415-21-914-5180	HAT, SUN, TEMPERATE WEATHER, COMBAT, CADPAT TW	6 7/8
8415-21-914-5181	HAT, SUN, TEMPERATE WEATHER, COMBAT, CADPAT TW	7
8415-21-914-5182	HAT, SUN, TEMPERATE WEATHER, COMBAT, CADPAT TW	7 1/8
8415-21-914-5183	HAT, SUN, TEMPERATE WEATHER, COMBAT, CADPAT TW	7 1/4
8415-21-914-5184	HAT, SUN, TEMPERATE WEATHER, COMBAT, CADPAT TW	7 3/8
8415-21-914-5185	HAT, SUN, TEMPERATE WEATHER, COMBAT, CADPAT TW	7 1/2
8415-21-914-5186	HAT, SUN, TEMPERATE WEATHER, COMBAT, CADPAT TW	7 5/8
8415-21-914-5187	HAT, SUN, TEMPERATE WEATHER, COMBAT, CADPAT TW	7 3/4
8415-21-914-5188	HAT, SUN, TEMPERATE WEATHER, COMBAT, CADPAT TW	7 7/8

FIGURE 1: FRONT AND BACK



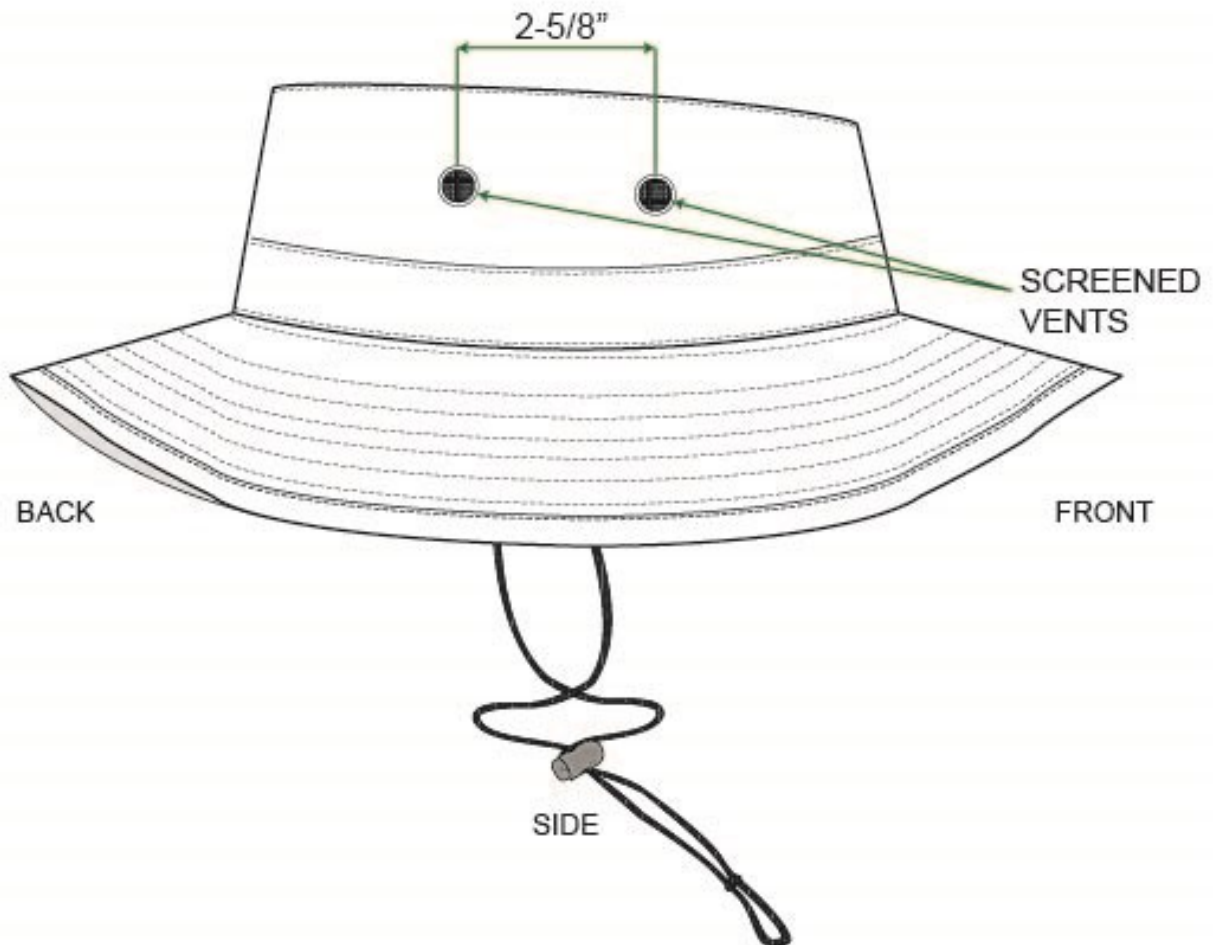
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5 January 2017

FIGURE 2: FRONT AND BACK DETAILS



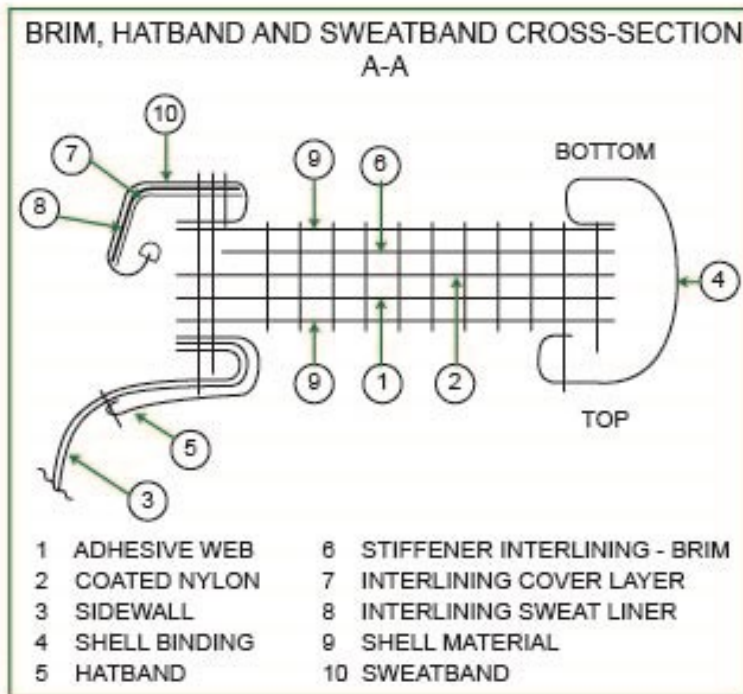
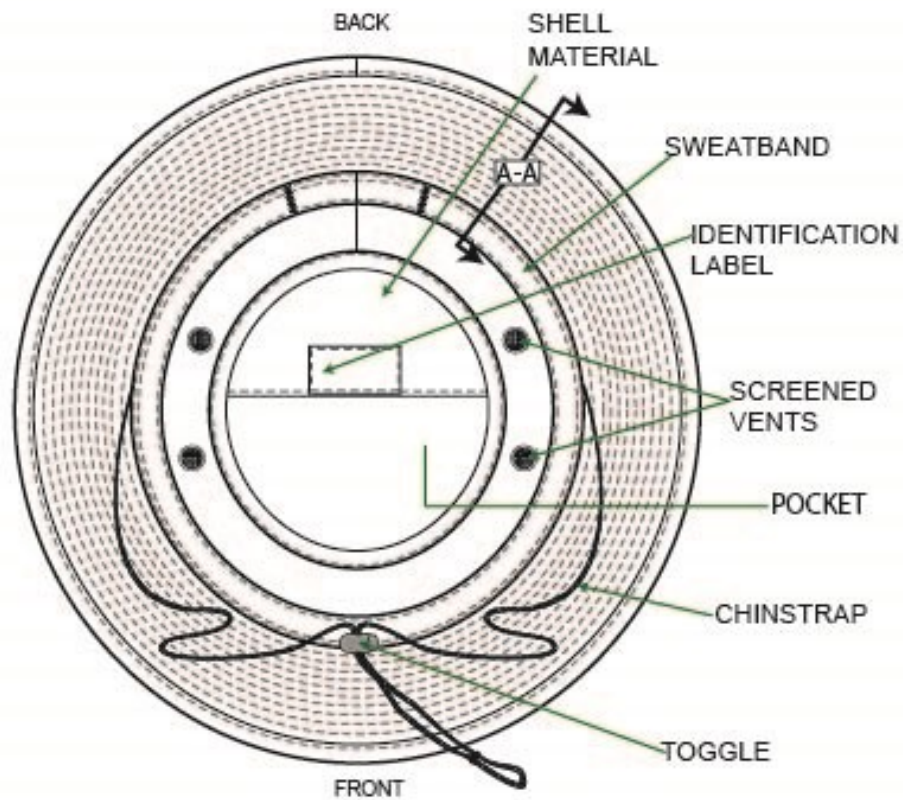
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FIGURE 3: SIDE VIEW



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5 January 2017

FIGURE 4: INSIDE DETAILS



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