



**RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:**

**Bid Receiving - PWGSC / Réception des
soumissions - TPSGC**
11 Laurier St./ 11, rue Laurier
Place du Portage, Phase III
Core 0B2 / Noyau 0B2
Gatineau, Québec K1A 0S5
Bid Fax: (819) 997-9776

**REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Vendor/Firm Name and Address

**Raison sociale et adresse du
fournisseur/de l'entrepreneur**

Issuing Office - Bureau de distribution

Clothing and Textiles Division / Division des vêtements et
des textiles
11 Laurier St./ 11, rue Laurier
6A2, Place du Portage
Gatineau, Québec K1A 0S5

Title - Sujet HAT, SUN, TEMPERATE WEATHER, COMBAT		
Solicitation No. - N° de l'invitation W8486-163168/A	Date 2016-07-20	
Client Reference No. - N° de référence du client W8486-163168		
GETS Reference No. - N° de référence de SEAG PW-\$\$PR-707-71283		
File No. - N° de dossier pr707.W8486-163168	CCC No./N° CCC - FMS No./N° VME	
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2016-08-22		Time Zone Fuseau horaire Eastern Daylight Saving Time EDT
F.O.B. - F.A.B. Specified Herein - Précisé dans les présentes Plant-Usine: <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input checked="" type="checkbox"/>		
Address Enquiries to: - Adresser toutes questions à: Elder, Sylvie		Buyer Id - Id de l'acheteur pr707
Telephone No. - N° de téléphone (873) 469-3172 ()		FAX No. - N° de FAX (819) 956-5454
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: Specified Herein Précisé dans les présentes		

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée See Herein	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie) Signature Date	

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PART 1 - GENERAL INFORMATION

1.1 Security Requirement

There is no security requirement associated with this bid solicitation.

1.2 Requirement

The "Requirement" is detailed under Annex A of the resulting contract clauses.

1.3 Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

1.4 Trade Agreements

The requirement is subject to the provisions of the Agreement on Internal Trade (AIT).

1.6 Canadian Content

The requirement is limited to Canadian goods.

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the *Standard Acquisition Clauses and Conditions Manual* (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2016/04/04) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Delete: 60 days

Insert: 120 days

2.2 Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than seven (7) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

2.4 Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the Bidders.

2.5 Technical Data and Sample

Technical data and samples (if applicable) may be viewed (by appointment only) at the following offices:

Public Works & Government Services Canada
Supply Directorate
6th floor
1550 ave D'Estimauville
Quebec, Que. G1J 0C7
TEL: 418-649-2714
FAX: 418-648-2209
Attention: Micheline Naud (micheline.naud@tpsgc-pwgsc.gc.ca)

Public Works & Government Services Canada
Place Bonaventure, South-East Portal
800 de La Gauchetière Street West, 7th Floor
Montreal, Quebec H5A 1L6
TEL: 514-496-3404
FAX: 514-496-3822
Attention: Viviane Rouhault (viviane.rouhault@tpsgc-pwgsc.gc.ca)

Public Works & Government Services Canada
Suite 480, 33 City Centre Drive
Mississauga, Ont. L5B 2N5
TEL: 905-615-2070
FAX 905-615-2023
Attention: Rosy Gupta (rosy.gupta@tpsgc-pwgsc.gc.ca)

Public Works & Government Services Canada
Suite 100, 167 Lombard Avenue
P.O. Box 1408
Winnipeg, Manitoba R3C 2Z1
TEL: 204-983-3774
FAX: 204-983-7796
Attention: Bev Laurin (bev.laurin@tpsgc-pwgsc.gc.ca)

Public Works & Government Services Canada
Telus Plaza North
10025 Jasper Avenue, 5th Floor
Edmonton, AB T5J 1S6
TEL: (780) 497-3564
FAX: (780) 497-3510
Attention: Nicole Boucher (wst-pa-edm@tpsgc-pwgsc.gc.ca)

Public Works & Government Services Canada
1713 Bedford Row, 5th Floor
Halifax, N.S. B3J 1T3
TEL: 902-496-5076
FAX: 902-496-5016

2.6 Technical Data

In order to receive Technical Data Packages against this solicitation, bidders must provide the following details with their request:

- Company Name
- Complete mailing & physical address (p.o. box numbers not acceptable)
- Area code and telephone number
- Contact name
- E-mail address
- Solicitation Number & Closing Date

and send their request (by facsimile message or e-mail) to the following:

E-mail : Sylvie.elder@tpsgc-pwgsc.gc.ca **OR** Facsimile Number: 819-956-5454

It is imperative that the request be done as soon as possible to ensure timely receipt. Notwithstanding Canada must not be held responsible for untimely release of the technical data.

2.7 Specifications and Standards

2.7.1 Canadian General Standards Board (CGSB) - Standards

A copy of the CGSB Standards referred to in the bid solicitation is available and may be purchased from:

Canadian General Standards Board
Place du Portage III, 6B1
11 Laurier Street
Gatineau, Québec
Telephone: (819) 956-0425 or 1-800-665-CGSB (Canada only)
Fax: (819) 956-5740
E-mail: ncr.cgsb-ongc@pwgsc-tpsgc.gc.ca
CGSB Website: <http://www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-eng.html>

2.8 Transportation Costs Information

The Bidder is requested to provide the following information concerning transportation costs for the delivery of the units to destination:

- (a) shipping weight by unit; _____
- (b) number of items by unit; _____
- (c) cubic measurement by unit; _____
- (d) number of units per shipment: _____
- (e) name of shipping point; _____
- (f) recommended method of shipment and carrier _____
- (g) Unit cost per Destination WB941: \$ _____ W248A: \$ _____
- (h) Total cost \$ _____

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

Canada requests that bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid (3 hard copies)
Section II: Financial Bid (1 hard copy)
Section III: Certifications (1 hard copy)
Section IV: Additional Information (1 hard copy)

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that Bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation;

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, Bidders should:

1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and

2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

3) Green Initiatives (for PWGSC information only)

Bidders are requested to provide details of their policies and practices in relation to the following initiatives:

- environmentally responsible manufacturing;
- environmentally responsible waste disposal;
- waste reduction;
- packaging;
- re-use strategies;
- recycling.

Section I: Technical Bid

In their technical bid, Bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work (reference pre-award sample, Part 4, Evaluation Procedures, 4.1.1.1 Mandatory Technical Criteria)..

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment. The total amount of Applicable Taxes must be shown separately.

3.1.1 Electronic Payment of Invoices – Bid

If you are willing to accept payment of invoices by Electronic Payment Instruments, complete Annex “D” Electronic Payment Instruments, to identify which ones are accepted.

If Annex “D” Electronic Payment Instruments is not completed, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

3.1.2 Exchange Rate Fluctuation

C3011T 2013/11/06 Exchange Rate Fluctuation

Section III: Certifications

Bidders must submit the certifications and additional information required under Part 5.

Section IV: Additional Information

3.1.3. Origin of Work

For each line item, bidders must identify the name(s) of the country or countries where the apparel goods are cut (or knit to shape) and sewn, regardless of whether the work is to be performed by the Bidder or one of its subcontractor(s).

The following information must be provided for each location where any of the goods are cut (or knit to shape) or sewn:

Line Item number _____

Country: _____

(Bidders must add additional lines if there is more than one manufacturer or one country per line item.)

Bidders must immediately inform Canada in writing of any and all changes affecting the information provided under this clause during the entire bid validity period.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

Pre-Award Sample and Supporting Documentation

As part of the technical evaluation, to confirm a Bidder's capability of meeting the technical requirements, one (1) pre-award sample of the hat in size 7 , fabric sample, test results *and* certificates of compliance must be included with the bid.

Fabric requirements - One (1) metre in length, full width must constitute a pre-award sample.

The Bidder must ensure that the required pre-award sample is manufactured in accordance with the technical requirement and is/are fully representative of the bid submitted. Rejection of the pre-award sample will result in the bid being declared non-responsive.

The Bidder must deliver the required pre-award samples, test results **and** certificates of compliance at no charge to Canada and must ensure that they are received with the bid at time and place of bid closing. Failure to submit the required pre-award samples, test results **and** certificates of compliance within the specified time frame will result in the bid being declared non-responsive. The samples submitted by the Bidder will remain the property of Canada.

Laboratory analysis of the product offered showing test results for specific tests listed at Annex C must be provided with the pre-award sample. Testing must be performed by an independent accredited laboratory establishment and must be in accordance with the test methods detailed in the Requirement. The laboratory report and test results must be dated within six months of the Request for Proposal posting date.

In addition, Certificate of Compliance for listed at Annex C are required as defined herein.

The pre-award sample will be evaluated for quality of workmanship and conformance to specified materials and measurements.

Minor infractions (up to a maximum of 3) will not be a reason to reject the samples unless, in the opinion of the technical evaluators, they are considered to render the item unserviceable. However, only one critical infraction will result in the bid being declared non-responsive.

The requirement for a pre-award sample, test results **and** certificates of compliance) will not relieve the successful bidder from submitting sample, test results **and** certificates of compliance as required by the contract terms or from strictly adhering to the technical requirement of this Request for Proposal and any resultant contract.

In the event that a component, is not available to the Bidder in a time frame to manufacture the pre-award sample, the Bidder may use a similar substitute component. Also, the Bidder must include a letter explaining the substitution submitted with the pre-award sample, together with a statement that, should the Bidder be awarded the contract, all materials will be strictly in accordance with the technical requirement.

Hat and packaging must not have any markings that identify company name, including stamps, hang tags, or markings inside and outside of the hat. Non-compliance of this requirement can result in the bid being disqualified.

CERTIFICATE OF COMPLIANCE-DEFINITION

A Certificate of Compliance is a written statement from an appropriate official of the component manufacturer attesting the full compliance of the components to the specification. This document must be on official company stationery; it must be dated within six months of the Request for Proposal posting date, it must make reference to the applicable specification and have the original signature of the company's designated representative. Canada reserves the right to verify the statements made in the Certificate of Compliance. Full test results, demonstrating the product's compliance, will be accepted in lieu of a Certificate of Compliance.

If a certificate of compliance is not submitted with the bid, the Contracting Authority will inform the Bidder in writing and provide the Bidder with two (2) working days from the request to submit the certificate of compliance. Failure to comply with the request within the specified timeframe will result in the bid being declared non-responsive.

4.1.2 Financial Evaluation

4.1.2.1 Mandatory Financial Criteria

- a. The Bidder must submit firm unit prices in Canadian dollars, applicable taxes are excluded, DDP (Montreal, QC and Edmonton, AB) Incoterms 2000, transportation costs included, all applicable Customs Duties and Excise taxes included.
- b. The Bidder must submit firm unit pricing for the item and all destinations including options quantities. The Bidder is requested to quote firm unit pricing at no more than two decimal points.

4.1.2.2 SACC MANUAL CLAUSE

A9033T 2012/07/16 Financial Capability

4.2 Basis of Selection

A bid must comply with all requirements of the bid solicitation and meet all mandatory technical and financial evaluation criteria to be declared responsive.

The responsive bid with the lowest evaluated aggregate price will be recommended for award of a contract (1 contract only). Evaluation will be established using the firm quantity for the item, including all destinations and 100% of the option quantities.

4.3 Contract Financial Security

1. If this bid is accepted, the Bidder may be required to provide contract financial security, after the bid closing date and within 10 calendar days from receipt of a written request from the Contracting Authority.
 - (a) a security deposit as defined in clause "Security Deposit Definition" in the amount of up to ten percent (10%) of the contract price.
2. Security deposits in the form of government guaranteed bonds with coupons attached will be accepted only if all coupons that are unmaturing, at the time the security deposit is provided, are attached to the bonds. The Contractor must provide written instructions concerning the action to be taken with respect to coupons that will mature while the bonds are pledged as security, when such coupons are in excess of the security deposit requirement.
3. If Canada does not receive the required financial security within the specified period, Canada may, as its discretion, accept another offer, issue a new bid solicitation, award a contract or reject all the bids.

4.4 Security Deposit Definition

1. "security deposit" means
 - (a) a bill of exchange that is payable to the Receiver General for Canada, and certified by an approved financial institution or drawn by an approved financial institution on itself; or
 - (b) a Government guaranteed bond; or
 - (c) an irrevocable standby letter of credit, or
 - (d) such other security as may be considered appropriate by the Contracting Authority and approved by Treasury Board;
2. "approved financial institution" means
 - (a) any corporation or institution that is a member of the Canadian Payments Association;

- (b) a corporation that accepts deposits that are insured by the Canada Deposit Insurance Corporation or the "Régie de l'assurance-dépôts du Québec" to the maximum permitted by law;
 - (c) a credit union as defined in paragraph 137(6) the *Income Tax Act*;
 - (d) a corporation that accepts deposits from the public, if repayment of the deposits is guaranteed by Canadian province or territory; or
 - (e) the Canada Post Corporation.
3. "government guaranteed bond" means a bond of the Government of Canada or a bond unconditionally guaranteed as to principal and interest by the Government of Canada that is:
- (a) payable to bearer;
 - (b) accompanied by a duly executed instrument of transfer of the bond to the Receiver General for Canada in accordance with the *Domestic Bonds of Canada Regulations*;
 - (c) registered in the name of the Receiver General for Canada.
4. "irrevocable standby letter of credit"
- (a) means any arrangement, however named or described, whereby a financial institution (the "Issuer"), acting at the request and on the instructions of a customer (the "Applicant"), or on its behalf,
 - (i) will make a payment to or to the order of Canada, as the beneficiary;
 - (ii) will accept and pay bills of exchange drawn by Canada;
 - (iii) authorizes another financial institution to effect such payment, or accept and pay such bills of exchange; or
 - (iv) authorizes another financial institution to negotiate, against written demand(s) for payment, provided that the conditions of the letter of credit are complied with.
 - (b) must state the face amount which may be drawn against it;
 - (c) must state its expiry date;
 - (d) must provide for sight payment to the Receiver General for Canada by way of the financial institution's draft against presentation of a written demand for payment signed by the authorized departmental representative identified in the letter of credit by his/her office;
 - (e) must provide that more than one written demand for payment may be presented subject to the sum of those demands not exceeding the face amount of the letter of credit;
 - (f) must provide that it is subject to the International Chamber of Commerce (ICC) Uniform Customs and Practice (UCP) for Documentary Credits, 2007 Revision, ICC Publication No. 600. Pursuant to the ICC UCP, a credit is irrevocable even if there is no indication to that effect; and
 - (g) must be issued (Issuer) or confirmed (Confirmer), in either official language, by a financial institution that is a member of the Canadian Payments Association and is on the letterhead of the Issuer or Confirmer. The format is left to the discretion of the Issuer or Confirmer.

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

Bidders must provide the required certifications and additional information to be awarded a contract.

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract

5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the *Ineligibility and Suspension Policy* (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide with its bid the required documentation, as applicable, to be given further consideration in the procurement process.

5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

5.2.1 Integrity Provisions – Required Documentation

In accordance with the *Ineligibility and Suspension Policy* (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the Employment and Social Development Canada (ESDC) - Labour's website (http://www.esdc.gc.ca/en/jobs/workplace/human_rights/employment_equity/federal_contractor_program.page?&_ga=1.229006812.1158694905.1413548969).

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

5.2.3 Additional Certifications Precedent to Contract Award

5.2.3.1 Canadian Content Certification

5.2.3.1.1 SACC Manual clause A3050T (2014/11/27) Canadian Content Definition

Rules of Origin - Apparel

With reference to the Canadian Content Certification clause, apparel goods are considered to be Canadian goods according to the North American Free Trade Agreement Rules of Origin as follows:

Apparel goods classified in Chapters 61 and 62 of the Harmonized System that are both cut (or knit to shape) and sewn in Canada will be considered Canadian goods.

Canadian Content Certification

This procurement is limited to Canadian goods.

The Bidder certifies that:

() the good(s) offered are Canadian goods as defined in paragraph 1 of clause A3050T.

Plant Location

Items will be manufactured at: _____

5.2.3.2 Sample and Production Certification

The Bidder certifies that:

- () the manufacturer that produced the pre-award sample(s) will remain unchanged for the pre-production samples and full production of the contract quantity.

PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

6.1 Security Requirements

6.1.1 There is no security requirement applicable to the Contract.

6.2 Requirement

The Contractor must provide the items detailed under the "Requirement" at Annex A.

6.3 Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

6.3.1 General Conditions

2030 (2016/04/04), General Conditions - Goods (Higher Complexity), apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Delivery Required (Desirable) - Firm Quantity

All firm deliverables are requested complete by 31 July 2017.

Delivery - Firm Quantity - Phased

The first delivery must be made within _____ calendar days from the date of the written notice of approval of pre-production sample. The quantity delivered must be _____ each. The balance must be delivered at the rate of _____ each weekly after the first delivery until completion of the Contract.

Delivery - Option Quantity

The delivery of the option quantity must commence within _____ calendar days from receipt of the contract amendment and after final delivery of the contract quantity. The quantity delivered must be _____ each. The balance must be shipped at a rate of _____ each weekly after the first delivery until completion of the option quantity.

6.4.1.1 Delivery - Appointments

The Contractor must make deliveries to Canadian Forces (CF) Supply Depots by appointment only. The Contractor or its carrier must arrange delivery appointments by contacting the Depot Traffic Section at the appropriate location shown below. The consignee may refuse shipments when prior arrangements have not been made.

- (a) 7 CF Supply Depot Lancaster Park
Edmonton, Alta
780-973-4011, ext. 4524
- (b) 25 CF Supply Depot Montreal
Montreal, Qué.
514-252-2777, ext. 2363
25dfactrafficrdv@forces.gc.ca

6.4.1.2 Preparation for Delivery

The Contractor must prepare item for delivery in accordance with the latest issue of the Canadian Forces Packaging Specification D-LM-008-036/SF-000, DND Minimum Requirements for Manufacturer's Standard Pack.

6.4.1.3 Bulk Shipments

For bulk shipments, all cartons must be shipped on 40" x 48" pallets shrink-wrapped or equivalent with

6.4.1.4 Shipping Instructions - Delivery at Destination

1. Goods must be consigned to the destination specified in the Contract and delivered:

(a) Delivered Duty Paid (DDP) Montreal, QC and Edmonton, AB Incoterms 2000 for shipments from commercial contractor.

6.4.1.5 Rejected Goods

If any goods are rejected and are sold to any resale, all markings and insignia must be removed before being turned over to the purchaser.

6.4.1.6 SACC Manual Clauses

D2025C 2013/11/06 Wood Packaging Materials
D5545C 2010/08/16 ISO 9001:2008 - Quality Management Systems - Requirements (QAC C)
D6010C 2007/11/30 Palletization

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Sylvie.elder@tpsgc-pwgsc.gc.ca
Public Works and Government Services Canada
Acquisitions Branch
Commercial and Consumer Products Directorate (CCPD)
Clothing & Textiles Division
Place du Portage, Phase III, 6A2
11 Laurier Street
Gatineau, Quebec K1A 0S5
Telephone : 873-469-3172 Facsimile: 819-956-5454
E-mail address: sylvie.elder@tpsgc-pwgsc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

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W8486-163168/A
Client Ref. No. - N° de réf. du client
W8486-163168

Amd. No. - N° de la modif.
File No. - N° du dossier
pr707- W8486-163168

Buyer ID - Id de l'acheteur
pr707
CCC No./N° CCC - FMS No./N° VME

6.5.2 Technical Authority

The Technical Authority for this Contract is:

Mailing/Shipping Address

Department of National Defence
101 Colonel By Drive
Ottawa, Ontario
K1A 0K2
Attn: DSSPM _____(to be advised at contract)

The Technical Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority, however the Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

6.5.3 Procurement Authority

The Procurement Authority for the Contract is:

_____(Name of Procurement Authority)
_____(Title)
_____(Organization)
_____(Address)
Telephone: ____-____-____
Facsimile: ____-____-____
E-mail: _____(to be advised at contract)

The Procurement Authority is the representative of the department or agency for whom the Work is being carried out under the Contract. The Procurement Authority is responsible for the implementation of tools and processes required for the administration of the Contract. The Contractor may discuss administrative matters identified in the Contract with the Procurement Authority however the Procurement Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of Work can only be made through a contract amendment issued by the Contracting Authority.

6.5.4 Contractor's Representative

The person responsible for :

General enquiries

Name: _____
Telephone No.: _____
Facsimile No.: _____
E-mail address: _____

Delivery follow-up

Name: _____
Telephone No.: _____
Facsimile No.: _____
E-mail address: _____

6.6 Payment

6.6.1 Basis of Payment – Firm Unit Prices

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm unit price, as specified in Annex A for a cost of \$ (amount to be inserted at contract award). Customs duties are included and Applicable Taxes are extra.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

Basis of Payment

The Contractor will be paid in accordance with the Basis of Payment attached hereto as Annex A, for Work performed pursuant to this Contract.

6.6.2 SACC Manual Clauses

H1001C 2008/05/12 Multiple Payments

6.6.3 Electronic Payment of Invoices – Contract

The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s):

- a. Visa Acquisition Card;
- b. MasterCard Acquisition Card;
- c. Direct Deposit (Domestic and International);
- d. Electronic Data Interchange (EDI);
- e. Wire Transfer (International Only);
- f. Large Value Transfer System (LVTS) (Over \$25M)

6.7 Invoicing Instructions

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.
2. Invoices must be distributed as follows:
 - a) One (1) copy must be forwarded to the following address :

National Defence Headquarters
MGen George R. Pearkes Building
101 Colonel By Drive
Ottawa, ON K1A 0K2
Attn: DLP _____
Email: _____ (to be inserted at contract award)

(b) One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

(c) The original and one (1) copy must be forwarded to the consignee for certification and payment.

6.8 Certifications and Additional Information

6.8.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

6.8.2 SACC Manual Clauses

A3060C 2008/05/12 Canadian Content Certification

6.9 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

6.10 Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- a) the Articles of Agreement;
- b) the general conditions 2030 (2016/04/04), General Conditions - Goods (Higher Complexity);
- c) Annex A, Requirement;
- d) Specifications;
- e) Drawings;
- f) Sealed Sample;
- g) the Contractor's bid dated _____

6.11 Defence Contract

SACC Manual clause A9006C (2012/07/16) Defence Contract

6.12 SACC Manual Clauses

B7010C 2008/05/12 Marking and Labelling
C2611C 2007/11/30 Customs Duties - Contractor Importer
C2801C 2014/11/27 Priority Rating - Canadian-based Contractors

6.13 Materials: Contractor Total Supply

The Contractor will be responsible for obtaining all materials required in the manufacture of the item(s) Specified. The delivery stated for the item(s) allows the necessary time to obtain such materials.

6.14 Procedures for Design Change/Deviations

The Contractor must follow these procedures for any proposed design change/deviation to contract specifications.

The Contractor must complete Part 1 to 12B the Design Change/Deviation form DND 675 and forward one (1) copy to the Technical Authority and one (1) copy to the Contracting Authority.

The Contractor will be authorized to proceed upon receipt of the design change/deviation form signed by the Contracting Authority. A contract amendment will be issued to incorporate the design change/deviation in the Contract.

6.15 Plant Closing

The Contractor's plant closing for Christmas and Summer holidays are as follows. During this time there will be no shipments.

2016-2017

Christmas Holiday	FROM _____	TO _____
Summer Holiday	FROM _____	TO _____

2017-2018

Christmas Holiday	FROM _____	TO _____
Summer Holiday	FROM _____	TO _____

2018-2019

Christmas Holiday	FROM _____	TO _____
Summer Holiday	FROM _____	TO _____

6.16 Plant Location

Items will be manufactured at: _____

6.17 Subcontractor(s)

The following subcontractor(s) will be utilized in the performance of the contract.

Name of Company: _____

Location: _____

Value of subcontract: \$ _____

Nature of subcontracting work performed: _____

Subcontractors, other than those listed above, may not be utilized without the written permission of Canada.

6.18 Origin of Work - Disclosure of Information

- For each line item, the Contractor must specify the name(s) of all countries where the apparel goods are cut (or knit to shape) or sewn, regardless of whether the work is to be performed by the Contractor or one of its subcontractor(s).
- The Contractor agrees that Canada may publicly disclose the information provided with respect to the countries of origin.
- The Contractor must immediately inform Canada in writing of any and all changes affecting the information provided under this clause during the entire contract period.

6.19 Overshipment

Overshipment will not be accepted unless prior approval is obtained from the Contracting Authority.

6.20 Ownership of Product - CADPAT

All products and materials provided to perform the work and any modifications made by the Contractor are the property of Canada.

Patterns and technical data are patented and copyrighted to Her Majesty the Queen of Canada.

The printed textile and any garments made are for the sole end use of the Department of National Defence. The contractor acknowledges that it must not manufacture, sell or offer for sale goods incorporating the CADPAT pattern and colours to any person or entity other than Canada without the Minister's prior written authorization.

It is an explicit condition of this agreement that any second quality garments or goods produced pursuant to the contract will not be released, sold or offered to be sold, directly or indirectly to any person or corporation other than Canada without the Minister's prior written authorization.

6.21 Pre-Production Sample

1. The Contractor must provide a pre-production sample of the hat in size 7 ½ in CADPAT TW accompanied by the sealed sample if applicable, to the Technical Authority for acceptance within 21 calendar days from date of contract award .
2. If the pre-production sample is rejected, the Contractor must submit a second pre-production sample within 15 calendar days of notification of rejection from the Technical Authority.
3. If the pre-production sample is accepted by either full acceptance or conditional acceptance, the Contractor must proceed with production as per the Contract requirements.
4. Rejection by the Technical Authority of the second pre-production sample(s) submitted by the Contractor for failing to meet the contract requirements will be grounds for termination of the Contract for default.
5. The Contractor must carry out all required inspection and tests to verify conformance to the technical requirements of the Contract.
6. In addition to providing the pre-production sample(s), the Contractor must provide laboratory test reports (Annex C) and Certificates of compliance (Annex C), as applicable, to the Contracting Authority and Technical Authority, transportation charges prepaid, and without charge to Canada.
7. The pre-production sample submitted by the Contractor will remain the property of Canada.
8. The Technical Authority will notify the Contractor, in writing, of the full acceptance, conditional acceptance, or rejection of the pre-production sample. A copy of this notification will also be provided by the Technical Authority to the Contracting Authority. The notice of the full acceptance or conditional acceptance does not relieve the Contractor from complying with all requirements and conditions of the Contract.
9. The Contractor must not commence or continue with production of the items and must not make any deliveries until the Contractor has received a written notification from the Technical Authority that the pre-production sample is fully acceptable or conditionally acceptable. Any production of items before pre-production sample acceptance will be at the sole risk of the Contractor.
10. The pre-production sample may not be required if the Contractor is currently in production. The request for waiver of pre-production sample must be made by the Contractor in writing to the Contracting Authority. The waiving of this requirement will be at the sole discretion of the Technical Authority and will be evidenced through a contract amendment.

Production Sample

1. In addition to the pre-production sample and test results for the CADPAT (TW) fabric must be submitted to the Technical Authority for every 10,000 meters or when the supplier changes ,
2. Rejection by the Technical Authority of the production sample(s) submitted by the Contractor for failing to meet the contract requirements will be grounds for termination of the Contract for default.

CERTIFICATE OF COMPLIANCE-DEFINITION

A Certificate of Compliance is a written statement from an appropriate official of the component manufacturer attesting the full compliance of the components to the specification. This document must be on official company stationery; it must be dated within six months of the Request for Proposal posting date; it must make reference to the applicable specification and have the original signature of the company's designated representative. Canada reserves the right to verify the statements made in the Certificate of Compliance. Full test results, demonstrating the product's compliance, will be accepted in lieu of a Certificate of Compliance.

Laboratory Analysis - Definition

Laboratory analysis of the product offered showing test results for specific tests listed in Annex C must be provided with the pre-production **and** production sample. Testing must be performed by an independent accredited laboratory establishment and must be in accordance with the test methods detailed in the technical requirement. The laboratory report and test results must be dated after request for proposal posting date

6.21.2 SealedSample - Guidance Only

The sealed sample is representative of the required item but is not part of the technical requirement. The sealed sample may not meet the technical requirement in all respects and must be used for guidance only during production.

6.21.3 Sealed Sample - Return to Sender

The sealed sample which may have been sent to the Contractor, is/are to be returned to the sender upon completion of Contract.

The sealed sample is not to be mutilated or cut, and must be returned in the same condition as sent to the Contractor.

6.22 Specifications and Standards

6.22.1 Canadian General Standards Board (CGSB) - Standards

A copy of the CGSB Standards referred to in the Contract is available and may be purchased from:

Canadian General Standards Board
Place du Portage III, 6B1
11 Laurier Street
Gatineau, Québec
Telephone: (819) 956-0425 or 1-800-665-CGSB (Canada only)
Fax: (819) 956-5740
E-mail: ncr.cgsb-ongc@pwgsc-tpsgc.gc.ca
CGSB Website: <http://www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-eng.html>

6.23 Financial Security

1. Canada may convert the security deposit to the use of Canada if any circumstance exists which would entitle Canada to terminate the Contract for default, but any such conversion will not constitute termination of the Contract.

2. Where Canada so converts the security deposit:

(a) the proceeds will be used by Canada to complete the Work according to the conditions of the Contract, to the nearest extent that it is feasible to do so and any balance left will be returned to the Contractor on completion of the warranty period; and

- (b) if Canada enters into a Contract to have the Work completed, the Contractor will:
- (i) be considered to have irrevocably abandoned the Work; and
 - (ii) remain liable for the excess cost of completing the Work if the amount of the security deposit is not sufficient for such purpose. "Excess cost" means any amount over and above the amount of the Contract Price remaining unpaid together with the amount of the security deposit.

3. If Canada does not convert the security deposit to the use of Canada before completion of the contract period, Canada will return the security deposit to the Contractor within a reasonable time after such date.

4. If Canada converts the security deposit for reasons other than bankruptcy, the financial security must be reestablished to the level of the amount stated above so that this amount is continued and available until completion of the contract period.

ANNEX A REQUIREMENT

1. TECHNICAL REQUIREMENT

The Contractor is required to provide Canada for the Department of National Defence (*DND*) with hat, sun temperate weather combat in accordance with the specification for hat, sun temperate weather combat dated 7 November 2015, patterns, drawings, sealed sample.

2. ADDRESSES

Destination Address	Invoicing Address
WB941 Department of National Defence 25 CFSD Montreal 6363 Notre Dame St. E. Montreal, Quebec H1N 1V9	W1941 Department of National Defence CFSD Montreal P.O. Box 4000 Stn K Montreal, Quebec H1N 3R9 Attention: Accounts payable
W248A Department of National Defence 7 CF Supply Depot 195 Ave & 82nd St., Bldg. 236 Edmonton, Alberta T5J 4J5	W2481 Department of National Defence 7 CF Supply Depot Stn Forces, P.O. Box 10500 Edmonton, Alberta T5J 4J5 Attention: Accounts payable

3. DELIVERABLES

CONTRACT QUANTITY

Firm Quantity

Item	Description	Unit of Issue	Destination	Firm Quantity	Firm Unit Price, DDP, Transportation costs included, Applicable taxes extra
1	hat, sun temperate weather combat	Each	Edmonton	2680	\$ _____
			Montreal	4020	\$ _____

Size roll

NSN	SIZE	Montreal	Edmonton	total
8415-21-9145180	6 7/8	312	208	520
8415-21-9145181	7	1110	740	1850
8415-21-9145182	7 1/8	930	620	1550
8415-21-9145184	7 3/8	960	640	1600
8415-21-9145185	7 1/2	240	160	400
8415-21-9145186	7 5/8	180	120	300
8415-21-9145187	7 3/4	288	192	480
		4020	2680	6700

OPTION 1 24 months from contract award

Item	Description	Estimated Quantity	Unit of Issue	Firm Unit Price, DDP, Transportation costs included, Applicable taxes extra
2	hat, sun temperate weather combat	3350-6700	Each	\$ _____

OPTION 2 25-36 months from contract award

Item	Description	Estimated Quantity	Unit of Issue	Firm Unit Price, DDP, Transportation costs included, Applicable taxes extra
3	hat, sun temperate weather combat	3350-6700	Each	\$ _____

5. OPTION QUANTITIES - Identified as Items 3 and 4

The Contractor grants to Canada the irrevocable option to acquire the goods described under items #3 and 4 and under the same terms and conditions and at the prices stated in the Contract. The option may only be exercised by the Contracting Authority for a minimum of 3350 per amendment, if applicable up to a maximum of 6700 for all amendments in total, distributed amongst the items and destinations and will be evidenced through a contract amendment.

The Contracting Authority may exercise the option within 24 months after contract award date by sending a written notice to the Contractor.

Only one amendment per option may be issued.

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W8486-163168

Amd. No. - N° de la modif.
File No. - N° du dossier
pr707- W8486-163168

Buyer ID - Id de l'acheteur
pr707
CCC No./N° CCC - FMS No./N° VME

A size roll will be provided if and when the option is exercised.

ANNEX “D” to PART 3 OF THE BID SOLICITATION

ELECTRONIC PAYMENT INSTRUMENTS

The Bidder accepts any of the following Electronic Payment Instrument(s):

- ☐ () VISA Acquisition Card;
- ☐ () MasterCard Acquisition Card;
- ☐ () Direct Deposit (Domestic and International);
- ☐ () Electronic Data Interchange (EDI);
- ☐ () Wire Transfer (International Only);
- ☐ () Large Value Transfer System (LVTS) (Over \$25M)



National Défense
Défense nationale



NOTICE

This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

Annex B

To: W8646-

DSSPM 2-3-87-5176

7 November 2015

Supersedes:

DSSPM 2-3-87-5176

Dated: 11 September 2009

SPECIFICATION

FOR

HAT, SUN, TEMPERATE WEATHER, COMBAT

1 SCOPE

1.1 **Scope.** This Specification covers the materials, design and construction requirements for the Hat, Sun, Temperate Weather, Combat.

1.2 **Intended Use.** The Hat, Sun, Temperate Weather, Combat is intended to provide soldiers with protection from sun in temperate weather conditions.

1.3 **Classification.** This specification applies to the production of the following combat hats. The type must be specified in the contract.

Type I CADPAT™ Temperate Woodlands (TW), NSN 8415-21-914-5176 A/A

Type II CADPAT™ Arid Region (AR), NSN 8415-21-921-7797 A/A

Type III United Nations (UN) Blue, NSN 8415-21-921-4759 A/A

2 APPLICABLE DOCUMENTS

2.1 The following documents, of the issue in effect on the date of the Request for Proposal, form a part of this Specification to the extent specified herein. Documents referenced within the documents cited herein must not be applicable to this Specification unless the extent is specifically delineated in this Specification.

2.2 **Government Documents.** The following specifications will be provided by the Government, as part of this document. Additional copies may be obtained from the Department of National Defence, Ottawa, Ontario, K1A 0K2, Attention: DSCO 4-7:

Specifications

D-80-001-059/SF-001 Cloth, Coated, Nylon/Taffeta-Polyurethane

D-80-001-028/SF-001 Cord, Plaited, Spun Synthetic Fibre, Types I

D-80-001-055/SF-001 Specification for Label, Clothing and Equipment

Manufacturing Data

Product Data Package
DSSPM 2-2-80-023
Cloth, Twist, Nylon/Cotton, Lightweight, 170gm/m² Appendix 2
CADPAT™ (TW) colour and Infra-red requirements Appendix 3
CADPAT™ (AR) colour and Infra-red requirements
DSSPM 2-2-80-153
Tape, Fastener, Nylon, Hook and Loop, Appendix 4

2.3 Other Documents

Documents listed below as specifications are not provided by the Government and may be purchased from the sources shown:

Canadian General Standards Board
Telephone: (819) 956-0425 or 1-800-665-CGSB (Canada only)
Internet address: nrc.cgsb-ongc@pwgsc.gc.ca

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-54.1-M Stitches and Seams – Part 1 and 2: Textiles: Stitch Types –
Classification and Terminology;
CAN/CGSB-86.1-2003 Care Labelling of Textiles

Pantone Colour Chart available from Pantone Inc., Carlstadt, N.J., phone 201-935-5500

2.4 Figures

Figure 1 Hat, Sun, Temperate Weather, Combat, Type I, II, and III – Front and Back
Figure 2 Hat, Sun, Temperate Weather, Combat, Type I, II, and III – Front and Back Details
Figure 3 Hat, Sun, Temperate Weather, Combat, Type I, II, and III – Side View
Figure 4 Hat, Sun, Temperate Weather, Combat, Type I, II, and III – Inside Details

2.4.1 Additional front and back views of the hat, are shown in the Product Data Package (PDP), Appendix 1 to this specification. The PDP is provided as a guide to style and design.

2.5 Scaled Patterns

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

DSSPM 109-99*	Hat, Sun, Temperate Weather, Combat, CADPAT™ TW
DSSPM 112-01*	Hat, Sun, Temperate Weather, Combat, CADPAT™ AR
DSSPM 107-01*	Hat, Sun, Temperate Weather, Combat, UN Blue
DSSPM 259-01	Cloth, Twist, Nylon/Cotton, Lightweight, CADPAT™ (TW), Construction, Colours, and Pattern
DSSPM 253-02	Cloth, Twist, Nylon/Cotton, Lightweight, CADPAT™ (AR), Construction, Colours and Pattern
DCGEM 272-80	Cloth, Coated, Nylon Taffeta-Polyurethane -- Sealed for Finish
DSSPM 281-01	Canadian Average Green in CADPAT™ (TW)
DSSPM 263-02	Light Sand in CADPAT™ (AR)
DSSPM 252-04	Colour, United Nations (UN) Blue

*Brim on HSTWC must be same size as specified in this Annex and must be 3/4" smaller than sealed sample.

2.6 Pattern Drawings

2.6.1 The following pattern drawings will be provided by the Department of National Defence (DSSPM 2-5):

Style Code HSHWC13 Hat, Sun, Temperate Weather, Combat

2.6.2 The range of sizes covered by the pattern drawings is listed in the Scale of Measurements, Appendix 1 to this specification.

2.6.3 For bidding purposes, bidders are provided with the pattern drawings for Size 7. The full set of paper patterns is provided to the successful bidder after contract award and is available in paper as individual sized patterns or as a graded nest.

2.6.4 The hat must be produced in accordance with the pattern drawings provided.

2.7 Order of Precedence

2.7.1 In the event of conflict between the documents referenced herein and the contents of this Specification, the contents of this document must take precedence.

2.7.2 In the event of inconsistency within this Specification, the Design Authority must be contacted for clarification.

2.7.3 In the event of inconsistency between contract documents, such as contract, Specification, pattern drawings and sealed patterns, the order of precedence must be contract, Specification, pattern drawings 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 **Definition of Product** This Specification pertains to the three colour configurations of Hat, Sun, Temperate Weather, Combat. This garment has the following design features:

- a. brim around entire circumference of sidewall;
- b. webbing bar tacked at intervals around the hatband for the attachment of camouflage materials;
- c. two black screened vents and retention washers on each side of hat;
- d. cord chinstrap with toggle; and
- e. concealable phosphorescent tabs (Cat's-eyes).

3.2 All garment components must be governed by the applicable drawings at Appendix 1, or as otherwise specified. Hat circumference dimensions with corresponding sizes are shown in the Scale of Measurements at Appendix 1 to this specification.

3.3 **Pre-Production Samples.** When specified in the contract, pre-production samples must be completely representative of the final production garment being made from parts and materials as specified and by equipment and processes which will be used in quantity production.

3.4 Materials

3.4.1 **General.** Table 1 at para 3.4.16 identifies the colour of each material item detailed below for Combat hat Type I, II, and III.

3.4.2 **Shell Material.** The shell material must be Cloth, Twist, Nylon/Cotton, Lightweight, 170 g/m², Type V conforming to Manufacturing Data DSSPM 2-2-80-023. See Appendix 2.

3.4.3 **Print and Colour.** The print colours and pattern must be as specified in DSSPM 2-2-80-500 for CADPAT™ TW, Annex B Appendix 3, and as specified in DSSPM 2-2-80-501 for CADPAT™ AR. For United Nations (UN) Blue, refer to Sealed Pattern DSSPM 252-04 and Table 1.

3.4.4 **Brim Interlining Components.** The brim interlining must consist of 1 layer of adhesive web, 1 layer of coated nylon, and 1 layer of stiffener.

3.4.4.1 The adhesive web must be a polyamide web having a weight of 20 g/m². Style Web 20 from Veratex Lining Ltd, 5425 Ave Casgrain, Suite 701, Montreal, Quebec H2T 1X6 has been known to meet these requirements. Any other commercial equivalent is acceptable provided it is a Design Authority approved material. This layer of adhesive web must be in between the top layer of shell and the coated nylon.

3.4.4.2 The coated-nylon material must be cloth, coated, nylon taffeta-polyurethane conforming to D-80-001-059/SF-001. The finish must be in accordance with the Sealed Pattern DCGEM 272-80. The colour must be white.

3.4.11 Hook and Loop Fastener Tape. The hook and loop fastener tape must be, 3/4-inch (18 mm) wide, Type V, and must conform to the Manufacturing Data for Tape, Fastener, Nylon Hook and Loop, DSSPM 2- 2-80-153. The colour must be as identified in Table 1.

3.4.12 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 in roll or sheet form from Hanovia Inc, 6 Evans Street, Fairfield, New Jersey 07004, Phone (973) 651-5510 or Fax (973) 651-5550. Any other commercial equivalent is acceptable provided it is a Design Authority approved alternative material.

3.4.13 Labels

3.4.14 Marking and Label Information. The following information and care symbols must be incorporated on the label. The label may be polyester jacquard woven as in previous contracts or it must be in accordance with D-80-001-055/SF-001, Type I. The label must be nominally 2-inches (5 cm) long by 1-1/4 inches (3.2 cm) wide.

- a. NATO Stock Number (NSN) that is specific for each size
- b. Size of garment, e.g. 7 1/2;
- c. Month and year of production, e.g. 09/98 and Manufacturer (CA)
- d. Space to write personal identification, e.g. " ID _____ "
- e. Care Symbols in accordance with CAN/CGSB-86.1-2003 as follows:
 - a. Washing Symbol 6;
 - b. Bleaching Symbol 3;
 - c. Drying Symbol 2; and
 - d. Ironing/Pressing Symbol 5

3.4.15 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 Design Authority.

3.4.4.3 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/m² (+/- 10%). The average thickness must be 0.95 mm.

3.4.5 **Sweatband Interlining Components.** The sweatband interlinings must consist of 1 sweat absorption layer and 1 cover layer.

3.4.5.1 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/m² (+/- 10%). The average thickness must be 1.10 mm (+/- 10%).

3.4.5.2 The cover layer must be white. It must be 80 to 90% polyester and 10 to 20% rayon. The material must be 36 to 42 g/m². Style number 226 available from Veratex Lining Ltd, 5425 Casgrain Avenue, Suite 701, Montreal, Quebec, H2T 1X6, (514) 274-4495 have been known to meet these requirements. Any other commercial equivalent is acceptable provided it is a Design Authority approved alternative material.

3.4.6 **Chinstrap.** The chinstrap cording must be Cord, Plaited, Spun Synthetic Fibre, Lightweight conforming to D-80-001-028/SF-001, Type I. The colour must be as identified in Table 1.

3.4.7 **Webbing.** The webbing must be Textile, Spun Polyester, double Jacquard weave, 19 g/m² (+/- 5%) in weight, the warp ends must be 192 with 19 picks/cm. The thickness must be 1.7mm (+/- 10%) and the width must be 9/16-inch (14.3 mm). The colour must be a good visual match to the shell material as specified in Table 1. Apparel Trimmings, 2151 McGowan Road, Scarborough, Ontario MIS 3Y6, phone 416-298-6998 has been known to provide this item. The colour must be as identified in Table 1.

3.4.8 **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). Screen item number D53, and washer item number C658 available from Stimpson Co Inc, 900 Sylvan Ave, Bayport, NY, 11705-1097, (516) 472-2000, Fax (516) 472-2425, have been known to meet these requirements. Any other commercial equivalent is acceptable provided it is a Design Authority approved alternative item.

3.4.9 **Toggle.** The toggle must be a cylindrical, round tipped, plastic type with a non-metallic tension adjustment mechanism. Cord Stopper, style number LC-SR, colour Black, available from YKK Canada Inc, 3939 Thimmins Blvd, Ville St. Laurent, Quebec, H4R 1X3, (514) 332-3350, Fax (514) 332-6040, has been known to meet this requirement. Any other commercial equivalent is acceptable provided it is a Design Authority approved alternative item.

3.4.10 **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 TBX. The colour must be identified in Table 1.

3.6.1 All seams and stitching must be in accordance with CAN/CGSB-54.1-M.

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

3.6.3 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).

3.6.4 Bartacks 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).

3.6.5 The tension of the needle and bobbin threads must be adjusted to ensure correctly formed stitches.

3.7 Construction of Hat

3.7.1 **Brim Construction.** See Appendix 1.

3.7.2 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.

3.7.3 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 parallel lines of stitching running generally parallel to the circumference of the brim. The stitching must be evenly spaced at 1/4-inch (6.4 mm) +0/ -1/16 inch (tolerance of plus zero, minus one sixteenth of an inch), and may be either separate rings or a spiral pattern.

3.7.4 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 be attached by stitching, turning and topstitching, as shown in Appendix 1, or it must be done using an automatic binding machine. The binding must be clean finished 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. If seaming occurs in the binding, then the binding seam allowances must be a minimum than 3/8-inch (9.5 mm).

3.7.5 **Hatband and Sidewall Assembly.** The hatband must be applied by folding and edge stitching the top edge of the hatband to the outside sidewall.

3.7.6 **Webbing Attachment.** The webbing must be centred on the hatband. The hatband has a series of marks indicating where the webbing is anchored. At each mark stitch through the webbing, the hatband and the sidewall with a straight stitch, 3 times. Do not allow the stitching to extend past the webbing. The webbing must start and finish at the centre back. The webbing must not lay flat on the band. Care must be taken to allow ease between the webbing bartacking. 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.

3.7.7 **Phosphorescent Tab Loop Assemblies (Cat's-eye).** See Appendix 1, Page 6/14.

3.4.16 **Material Colour.** The following Table 1 identifies the colour of each material specified above as applicable.

Table 1 – Colour

ITEM	PARA	Type I CADPAT™(TW)	Type II CADPAT™(AR)	Type III UN BLUE
Shell Material	3.4.2	CADPAT™(TW) DSSPM 259-01	CADPAT™(AR) DSSPM 253-02	Pantone Textile Colour # 16-4134TC
Chinstrap	3.4.5	Canadian Average Green in Sealed Pattern DSSPM 281-01	Light Sand in Sealed Pattern DSSPM 263-02	Pantone Textile Colour # 16-4134TC
Webbing	3.4.6	CADPAT™(TW) 4 colour weave Apparel Trimmings Style # CMW0114	CADPAT™(AR) 3 colour weave Apparel Trimmings Style # CMW0214	Pantone Textile Colour # 16-4134TC Apparel Trimmings Style # CMW0014B
Thread	3.4.9	Canadian Average Green in Sealed Pattern DSSPM 281-01	Light Sand in Sealed Pattern DSSPM 263-02	Pantone Textile Colour # 16-4134TC
Hook and Loop	3.4.10	Canadian Average Green in Sealed Pattern DSSPM 281-01	Light Sand in Sealed Pattern DSSPM 263-02	Black
Neck Flap	3.7.18	CADPAT™(TW) DSSPM 259-01	CADPAT™(AR) DSSPM 253-02	Pantone Textile Colour # 16-4134TC

3.5 Cutting

3.5.1 Hats must be cut using Government supplied pattern drawings. Pattern drawings 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, grade or requirements specified herein must not be changed.

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

3.5.3 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.

3.6 Sewing

3.7.8.3 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.

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

3.7.8.5 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.

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

3.7.8.7 To secure the sweatband, bartack over alternate stitching on the webbing, beginning at the centre back for a total of seven bartacks. The stitching must be done through all layers. Care must be taken to ensure that the sweatband is in the appropriate position while stitching through all layers.

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

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

3.7.10 **Identification Labelling.** See Appendix 1. The identification label defined para 3.4.13 must be topstitched (on all four sides) onto the inside crown pocket, as shown in Appendix 1.

3.8 **Scale of Measurements.** The finished hat must meet the dimensional requirements stated in the Scale of Measurements in Annex B Appendix 1.

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 the Government or its designated representative. The Government reserves the right to perform any of the inspections specified herein, where such inspections are deemed necessary to ensure materiel and services conform to prescribed requirements. The contractor is responsible for ensuring that all material or services submitted to the Government 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 must be in accordance with the terms of the contract.

6 **NOTES**

3.7.7.1 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.

3.7.7.2 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.

3.7.7.3 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 Appendix I. The 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.

3.7.7.4 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.

3.7.7.5 **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.

3.7.7.6 **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.

3.7.7.7 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.

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

3.7.8 Sweatband.

3.7.8.1 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. All three layers must be placed together. The top long 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 long 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 (1.5 mm) gauge, catching all layers of the sweatband.

3.7.8.2 **Loop Fastener Tape.** The loop fastener tape must be applied to the sweatband. The loop must be 3/4-inch long by 3/4-inch wide (19 mm by 19 mm). One piece of loop fastener tape must be placed at the centre back. The remaining 4 pieces must be placed in accordance with the spacing on the neck flap. The loop fastener tape must be topstitched with a box and cross-stitch formation.

6.1 All alternative materials must be submitted to the Design Authority for approval. Requests for approval of alternative materials must be accompanied by a sample of each material proposed, test reports applicable to the material supporting its equivalency to the specified material, and a sample hat incorporating the alternative material. Alternative materials must be pre-approved by the Design Authority prior to their use in production.

6.2 Definition of Terms

6.2.1 **Design Authority.** The Design Authority is the Government agency responsible for the technical aspects of the design and changes to the design. The Design Authority for this requirement is the Directorate Soldier Systems Program Management (DSSPM 2), Department of National Defence.

6.2.2 **Sealed Pattern.** The sealed pattern is a duplicate of the Master Sealed Pattern which is the Department of National Defence's authorized prototype of the item to be produced.

6.2.3 **Quality Assurance Authority.** The Quality Assurance Authority (QAA) is the government appointed agency responsible for ensuring that material and services supplied by the contractor conform to specified requirements. The QAA will be stipulated in the contract.

6.2.4 **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.

FIGURE 1: HAT, SUN, TEMPERATE WEATHER, COMBAT, TYPE I, II and III - FRONT AND BACK

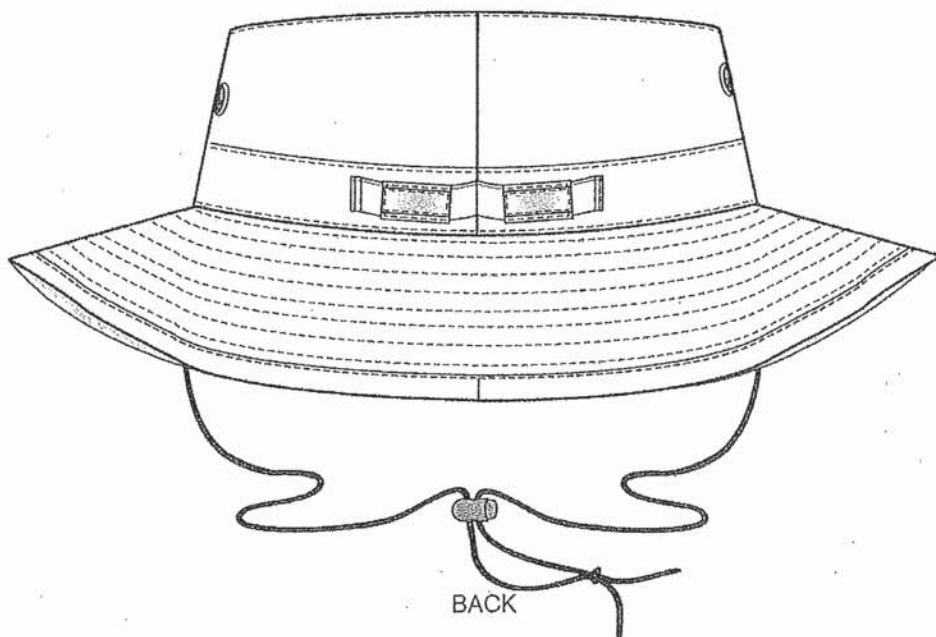
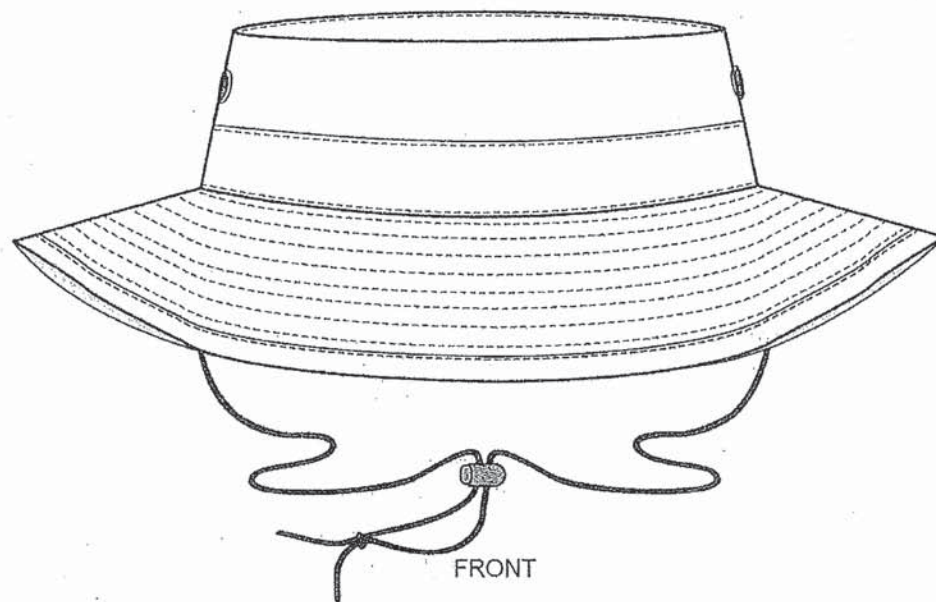


FIGURE 2: HAT, SUN, TEMPERATE WEATHER, COMBAT, TYPE I, II and III - FRONT AND BACK DETAILS

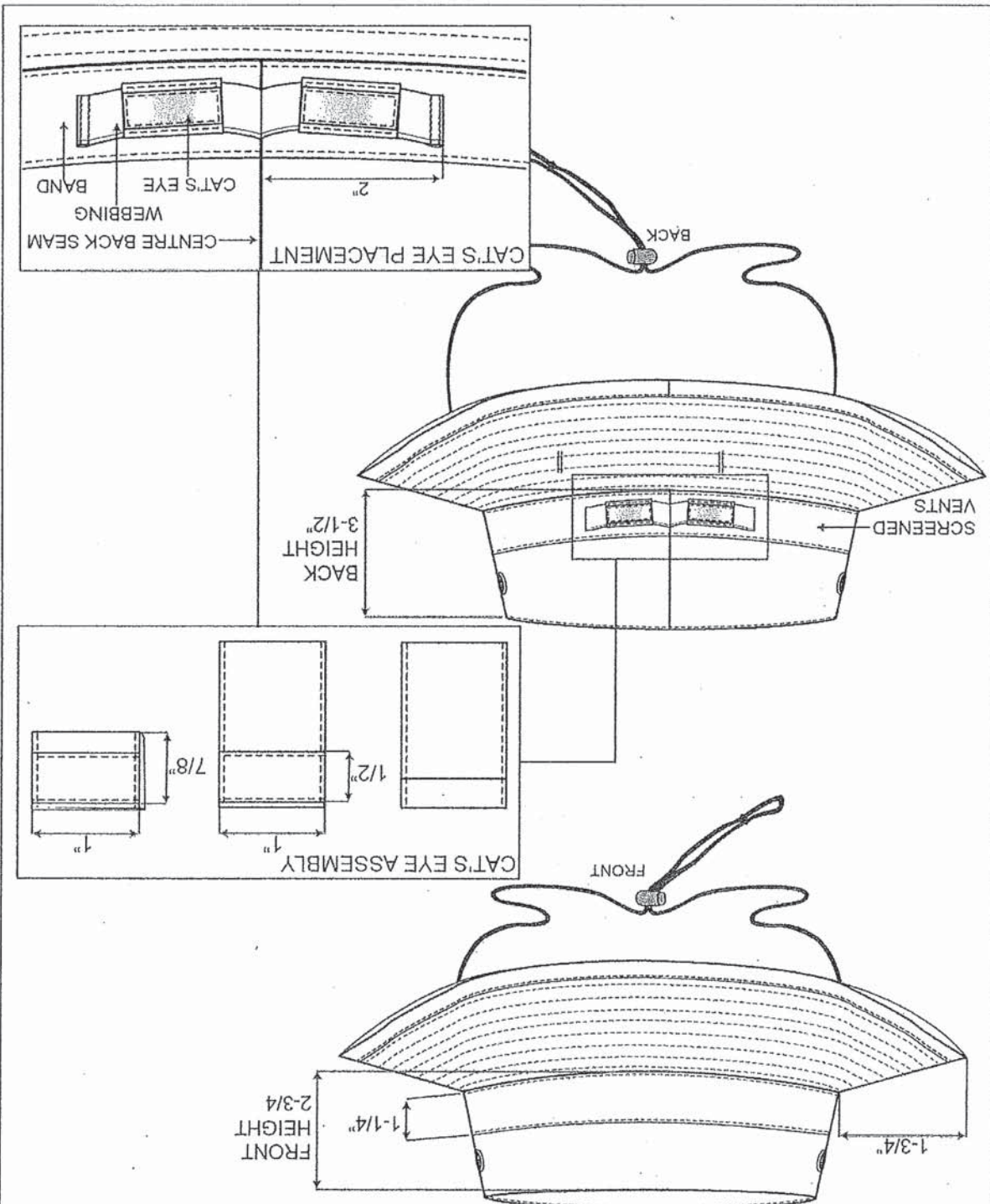


FIGURE 3: HAT, SUN, TEMPERATE WEATHER, COMBAT, TYPE I, II and III - SIDE VIEW

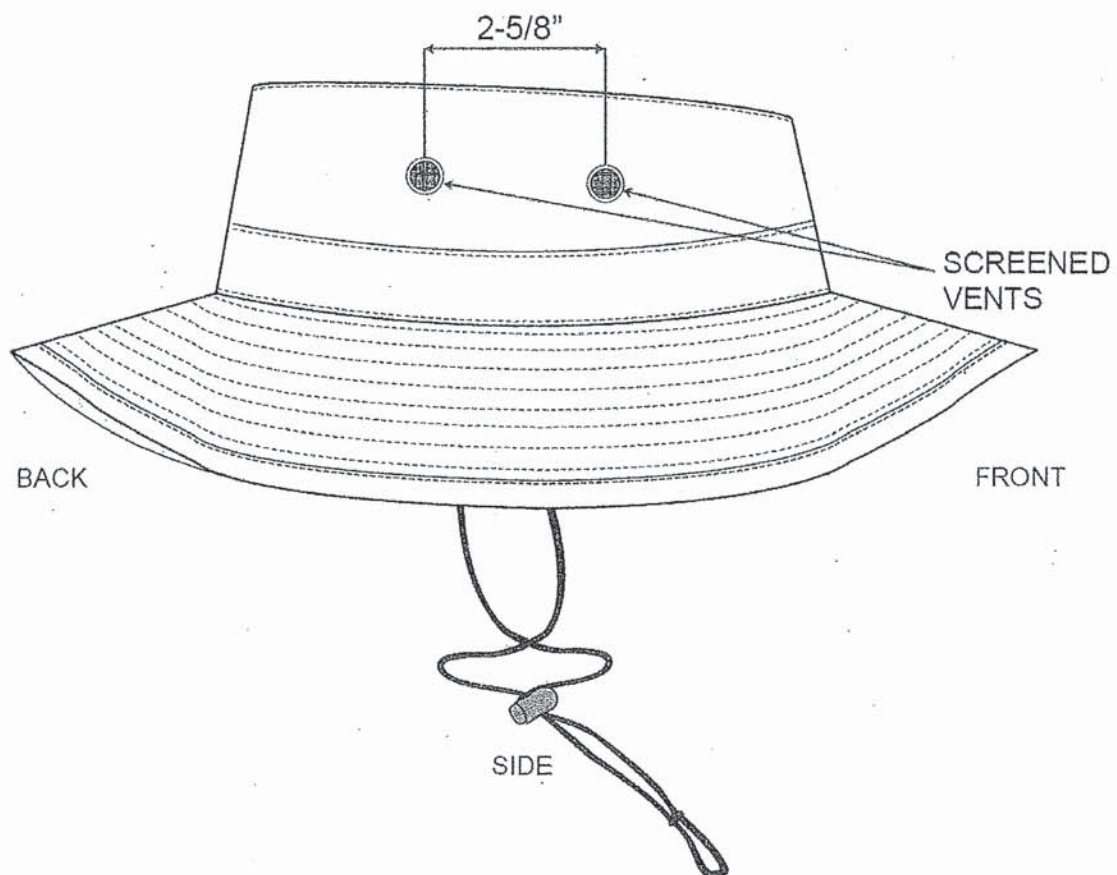
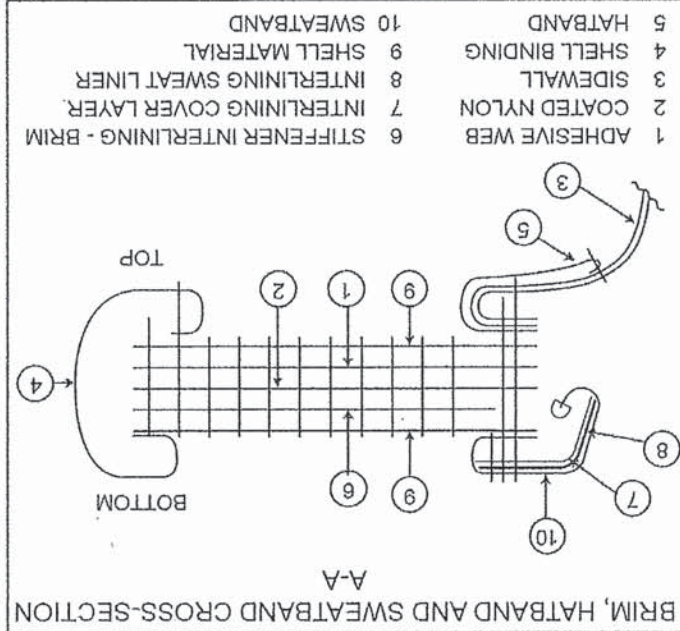
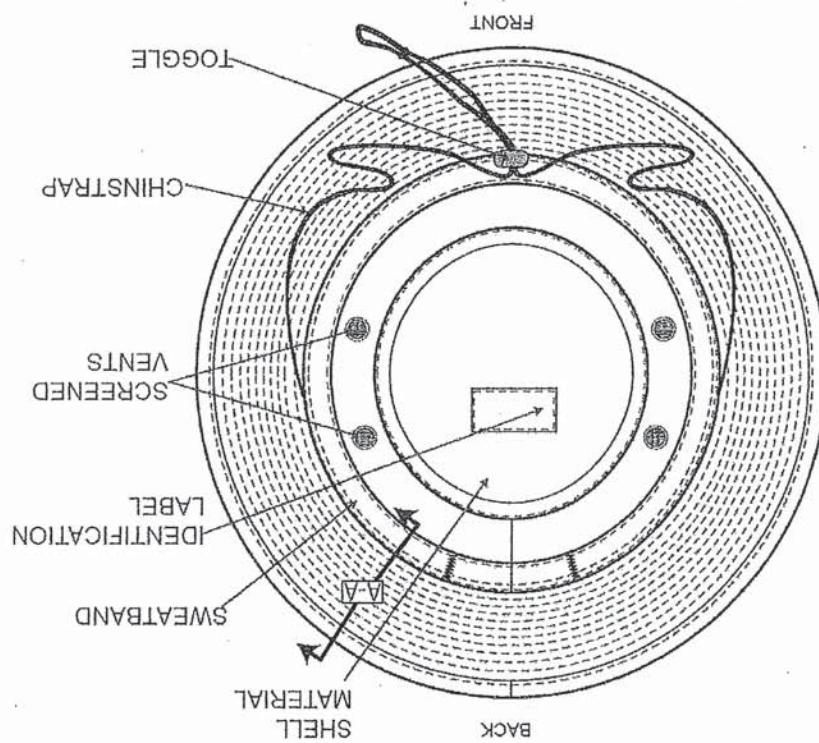


FIGURE 4: HAT, SUN, TEMPERATE WEATHER, COMBAT, TYPE I, II and III - INSIDE DETAILS



NOTICE



This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

SPECIFICATION

CLOTH, TWIST, NYLON/COTTON

LIGHTWEIGHT, 170 g/m²

1. SCOPE

1.1 Scope. This Specification covers the requirements for cloth, twist, nylon/cotton, lightweight, 170 g/m².

1.2 The information contained herein is Copyright to Her Majesty the Queen of Canada, as is its associated pattern. The term CADPAT™, with and without extensions, is a registered Trademark belonging to the Department of National Defence. Any of the data contained in this specification, and its associated pattern, may be used only for goods for Canada. The printed textile and any items made therefrom shall be for the sole end use of DND. There shall be no selling or offering for sale of goods incorporating the CADPAT™ pattern and colours to any person or entity other than Canada without the Minister's prior written authorization. Explicit in this is that any goods of not first quality produced shall not be released, sold, or offered for sale, directly or indirectly, to any person or corporation other than Canada without the Minister's prior written authorization.

SPÉCIFICATION

TISSU LÉGER DE NYLON/COTON SIMPLE

RETORS, 170 g/m²

1. PORTÉE

1.1 Portée. La présente spécification vise les exigences relatives au tissu léger de nylon/coton simple retors, 170 g/m².

1.2 L'information contenue dans le présent document, ainsi que le modèle associé, sont la propriété de Sa Majesté la Reine du Canada et protégés par droit d'auteur. Le terme DCamC^{MC}, avec ou sans extension, est une marque déposée, propriété du ministère de la Défense nationale. Les données contenues dans la présente spécification et le modèle associé ne peuvent être utilisés que pour des marchandises produites pour le Canada. Les tissus imprimés et tous les articles fabriqués dans ce tissu sont à l'usage final exclusif du MDN. Nul bien incorporant le motif et les couleurs du DCamC^{MC} ne peut être vendu ni offert à toute personne ou entité autre que le Canada sans l'autorisation préalable écrite du ministre. De façon explicite, tout bien qui n'est pas de première qualité ne peut être distribué, vendu ou offert en vente, directement ou indirectement, à toute personne physique ou morale autre que le Canada sans l'autorisation préalable écrite du ministre.

OPI/BPR: DSSPM 2-11



Canada

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1.3 CADPAT™, Canadian Disruptive Pattern, is intended for use, when specified, for all textiles used by the Canadian Forces for operational clothing and personal equipment. Any allowed deviations from the requirements stated for CADPAT™ performance shall be clearly defined in procurement documents.

1.4 Classification. The fabric shall be classified as follows:

Type I	Cloth, Twist, Nylon/Cotton, Lightweight, 170 g/m ² , CADPAT™ (TW) 8305-21-920-3746
Type II	Cloth, Twist, Nylon/Cotton, Lightweight, 170 g/m ² , Canadian Average Green 8305-21-874-1045
Type III	Cloth, Twist, Nylon/Cotton, Lightweight, 170 g/m ² , International Orange 8305-21-874-1044
Type IV	Cloth, Twist, Nylon/Cotton, Lightweight, 170 g/m ² , Air Force Blue 8305-21-920-3747
Type V	Cloth, Twist, Nylon/Cotton, Lightweight, 170 g/m ² , CADPAT™ (AR) 8305-21-921-7079
Type VI	Cloth, Twist, Nylon/Cotton, Lightweight, 170 g/m ² , United Nations (UN) Blue 8305-20-001-3075

2. APPLICABLE DOCUMENTS

2.1 Government Documents. The following publications form part of this Specification to the extent specified herein. The effective dates shall be those in effect on the date of the invitation to tender. Copies of this Specification may be obtained from the Department of National Defence, Ottawa, Ontario, Canada, K1A 0K2, Attention: DSSPM 2.

SPECIFICATIONS

D-LM-008-002/SF-001 Marking for Storage and Shipment (Appendix 3)

1.3 Le dessin de camouflage canadien, DCamC^{MC}, est destiné à être utilisé, lorsque cela est prescrit, pour tous les tissus employés par les Forces canadiennes dans la confection de vêtements opérationnels et d'équipement individuel. Tous les écarts autorisés par rapport aux exigences énoncées dans le présent document pour le rendement du DCamC^{MC} doivent être clairement définis dans les documents d'achat.

1.4 Classification. Les tissus doivent être classés comme suit :

Type I	Tissu léger de nylon/coton simple retors, 170 g/m ² , DCamC ^{MC} (RBT) 8305-21-920-3746
Type II	Tissu léger de nylon/coton simple retors, 170 g/m ² , vert canadien moyen 8305-21-874-1045
Type III	Tissu léger de nylon/coton simple retors, 170 g/m ² , orangé international 8305-21-874-1044
Type IV	Tissu léger de nylon/coton simple retors, 170 g/m ² , bleu de la Force Aérienne 8305-21-920-3747
Type V	Tissu léger de nylon/coton simple retors, 170 g/m ² , DCamC ^{MC} (RA) 8305-21-921-7079
Type VI	Tissu léger de nylon/coton simple retors, 170 g/m ² , bleu des Nations Unies (ONU) 8305-20-001-3075

2. DOCUMENTS APPLICABLES

2.1 Documents du gouvernement. Les documents suivants font partie intégrante de la présente spécification dans la mesure prescrite dans cette dernière. La version en vigueur à la date de l'appel d'offres s'applique. Des copies de la présente spécification peuvent être obtenues du ministère de la Défense nationale, Ottawa (Ontario), Canada K1A 0K2, à l'attention de : DAPES 2.

SPÉCIFICATIONS

D-LM-008-002/SF-001 Spécification visant le marquage pour l'entreposage et l'expédition (Annexe 3)

CADPAT™ PATTERN REQUIREMENTS

DSSPM 2-2-80-500
D-80-001-500/SF-001 CADPAT™ (TW)
[temperate woodland] requirements for colour and
infra-red reflection

DSSPM 2-2-80-501
D-80-001-501/SF-001 CADPAT™ (AR) [arid
region] requirements for colour and infra-red
reflection

2.2 Other Publications. The following documents
form part of this Specification to the extent specified
herein. Effective dates shall be those in effect on the
date of manufacture. Sources are as shown.

CAN/CGSB-4.2 Textile Test Methods
Canadian General Standards Board
11 Laurier Street
Place du Portage, Phase III
Hull, Quebec, K1A 1G6

FED-STD-191 Textile Test Methods
Defense Automated Printing Services,
Bldg. 4D (DPM-DODSSP)
700 Robbins Ave.,
Philadelphia PA 19111-5094 USA

Pantone Colour Chart
Pantone Inc.,
Carlstadt, New Jersey, USA
tel: 201-935-5500

2.3 Sealed Patterns. Sealed patterns are made
available to the bidders and the contractor(s) as a guide
to production. Sealed pattern numbers are:

DSSPM 259-01 Cloth, Twist, Nylon/Cotton,
Lightweight, CADPAT™(TW),
construction, colours, pattern,
finish, motif size, clarity,
penetration, hand, print quality

EXIGENCES RELATIVES AU DCamC^{MC}

DSSPM 2-2-80-500
D-80-001-500/SF-001 Exigences relatives à la
couleur et à la réflectance dans l'infrarouge pour le
DCamC^{MC} (RBT) [régions tempérées boisées]

DSSPM 2-2-80-501
D-80-001-501/SF-001 Exigences relatives à la
couleur et à la réflectance dans l'infrarouge pour le
DCamC^{MC} (RA) [régions arides]

2.2 Autres publications. Les publications
suivantes font partie intégrante de la présente
spécification selon les modalités indiquées ci-après. La
date d'entrée en vigueur doit être celle en vigueur à la
date de fabrication. La source de diffusion est celle qui
est indiquée.

CAN/CGSB-4.2 Méthodes pour épreuves textiles
Office des normes générales du Canada
11, rue Laurier
Place du Portage, Phase III
Gatineau (Québec) K1A 1G6

FED-STD-191 Textile Test Methods
Defense Automated Printing Services,
Bldg. 4D (DPM-DODSSP)
700 Robbins Ave.,
Philadelphia PA 19111-5094 ÉTATS-UNIS

Tableau des couleurs Pantone
Pantone Inc.,
Carlstadt, New Jersey ÉTATS-UNIS
Téléphone : 201-935-5500

2.3 Modèles réglementaires. Des modèles
réglementaires sont mis à la disposition des
soumissionnaires et des entrepreneurs comme guide
pour la production. Voici les numéros des modèles
réglementaires :

DSSPM 259-01 Tissu coton/nylon simple retors,
DCamC^{MC} (RBT), pour la
confection, les couleurs, la taille
des motifs, la distribution des
couleurs, la qualité de
l'impression, la pénétration, la
clarté et le fini à la main

DSSPM 281-01	Cloth, Twist, Nylon/Cotton, Lightweight, Canadian Average Green, construction, colour, IRR, hand (NOTE: Canadian Average Green is the predominant, darker, green)	DSSPM 281-01	Tissu léger de nylon/coton simple retors, vert canadien moyen, pour la construction, la couleur, la RIR et la main (REMARQUE : Le vert canadien moyen est le vert foncé prédominant)
DCGEM 263-78	Cloth, Nylon, Plain Weave, International Orange, colour only. Use 281-01 for construction	DCGEM 263-78	Tissu de nylon à armure unie, orangé international, couleur seulement. Utiliser 281-01 pour la confection
DCGEM 257-90	Cloth, Twist, Nylon/Cotton, Lightweight, Air Force Blue, colour only. Use 281-01 for construction	DCGEM 257-90	Tissu léger de nylon/coton simple retors, bleu pétrole, couleur seulement. Utiliser 281-01 pour la confection
DSSPM 253-02	Cloth, Twist, Nylon/Cotton, Lightweight, CADPAT™(AR), construction, colours, motif size, colour distribution, print quality, penetration, clarity, hand, finish	DSSPM 253-02	Tissu coton/nylon simple retors, DCamC ^{MC} (RA), pour la confection, les couleurs, la taille des motifs, la distribution des couleurs, la qualité de l'impression, la pénétration, la clarté, la main et le fini
DSSPM 252-04	Cloth, Twist, Nylon/Cotton, Lightweight, United Nations (UN) Blue, colour only. Use 281-01 for construction	DSSPM 252-04	Tissu léger de nylon/coton simple retors, bleu des Nations Unies (ONU), couleur seulement. Utiliser 281-01 pour la confection
DSSPM 2-2-1000	Package, Temperate Woodland, for pattern creation (NOTE: this will be applied for and obtained from the design authority, DSSPM 2, if required. See para 6.2.1)	DSSPM 2-2-1000	Ensemble de dessins, régions boisées tempérées, pour la création du motif (REMARQUE : Ce modèle devra être demandé au besoin à l'autorité responsable de la conception, DAPES 2-2, qui le fournira. Voir le paragraphe 6.2.1)
DSSPM 2-2-1001	Poster, Arid, for pattern creation (NOTE: this will be applied for and obtained from the design authority, DSSPM 2, if required. See para 6.2.1)	DSSPM 2-2-1001	Affiche, régions arides, pour la création de motifs (REMARQUE : Ce modèle devra être demandé au besoin à l'autorité responsable de la conception, DAPES 2-2, qui le fournira. Voir le paragraphe 6.2.1)

2.4 CADPAT™ Specifications. The technical requirement is defined and included in the applicable

2.4 Spécifications relatives au DCamC^{MC}. L'exigence technique est définie et incluse dans la spécification

DSSPM specification, either DSSPM 2-2-80-500 for CADPAT™(TW) or DSSPM 2-2-80-501 for CADPAT™(AR). *On request*, a full scale photograph showing the motif (pattern) size required and correct colour distribution may be made available. This is the CADPAT™(TW) Temperate Pattern Package DSSPM 2-2-1000. Note that there are colour measurement requirements for each of the 4 colours, individual IRR requirements for Canadian average green and black, and that the IRR requirement for colours light green and brown are the same - the light green curve is specified for both colours. Similarly, *on request*, a full scale poster for the pattern will be made available for CADPAT™ (AR), identified as DSSPM 2-2-1001. Each of the three colours is defined numerically, and each IRR curve is colour specific.

2.4.1 For bidding purposes, the sealed patterns for Types I and V, CADPAT™ printed cloth, DSSPM 259-01 and DSSPM 253-02, are supplied as a full metre. Under no circumstances are any Sealed Patterns to be mutilated or cut.

2.4.2 Canadian Average Green. The technical requirement is defined and included in this Specification as Appendix I. This includes requirements for colour and for Infra-red Reflection.

2.5 Order of Precedence

2.5.1 In the event of conflict between the documents referenced herein and the contents of this Specification, the contents of this document shall take precedence.

2.5.2 In the event of inconsistency within this Specification, including inconsistency between the two languages, the Design Authority (para 6.2.1) shall be contacted for clarification.

2.5.3 In the event of inconsistency between contract documents, such as contract, Specification, and Sealed Patterns, the order of precedence shall be contract, Specification, and then Sealed Pattern.

3. REQUIREMENTS

3.1 The cloth is a plain weave construction, to be made in accordance with the contract as Type I, II, III, IV, V, or VI. Its application is for operational combat clothing

DAPES applicable, soit DSSPM 2-2-80-500 pour le DCamC^{MC} (RBT) ou DSSPM 2-2-80-501 pour le DCamC^{MC} (RA). On peut obtenir *sur demande* une photographie grandeur nature montrant la taille requise du dessin (motif) et la bonne répartition des couleurs. Il s'agit du document DSSPM 2-2-1000, Ensemble de dessins pour le DCamC^{MC} (RBT). Veuillez prendre note qu'il existe des exigences de mesure des couleurs pour chacune des quatre couleurs, des exigences individuelles pour la mesure de la RIR pour le vert canadien moyen et le noir, et que les exigences relatives à la RIR pour le vert pâle et le brun sont les mêmes – la courbe pour le vert pâle est précisée pour les couleurs. De même, on peut obtenir *sur demande* une affiche grandeur nature pour le DCamC^{MC} (RA); il s'agit du document DSSPM 2-2-1001. Chacune des trois couleurs est définie numériquement, et chaque courbe RIR est propre à une couleur donnée.

2.4.1 Aux fins de soumissionner, les modèles réglementaires pour le tissu imprimé DCamC^{MC} de type I et V (DSSPM 259-01 et DSSPM 253-02) sont fournis comme mètre intégral. En aucun cas, les modèles réglementaires ne doivent être endommagés ni coupés.

2.4.2 Vert canadien moyen. Les exigences techniques sont définies et énoncées à l'annexe I de la présente spécification. Ces exigences portent notamment sur la couleur et la réflectance dans l'infrarouge.

2.5 Ordre de préséance

2.5.1 En cas de divergence entre les documents mentionnés aux présentes et le contenu de la présente spécification, cette dernière a préséance.

2.5.2 En cas d'incohérence dans l'énoncé de la spécification, incluant toute incohérence entre les deux langues, il faut communiquer avec l'autorité responsable de la conception (par. 6.2.1) pour obtenir des précisions.

2.5.3 En cas d'incohérence entre les documents contractuels, soit le contrat, la spécification et les modèles réglementaires, l'ordre de préséance est le suivant : le contrat, la spécification et les modèles réglementaires.

3. EXIGENCES

3.1 Le tissu doit être à armure unie et fabriqué conformément aux exigences du contrat pour les types I, II, III, IV, V ou VI. Ce tissu est employé pour les tenues

for the Canadian Forces, primarily for shirts, trousers, coveralls, hats, and helmet covers.

3.2 The materiel covered by this specification shall be free from imperfections or blemishes such as may adversely affect its appearance or serviceability. For inspection purposes, imperfections and blemishes shall be considered defects when clearly visible at a normal inspection distance of approximately one metre under good, preferably North Light, lighting conditions.

3.3 Sealed Patterns. Sealed patterns, when furnished, shall constitute the standard only in regard to any properties not defined in this Specification, and in association with any notes which may be included on the reverse side of the sealed pattern tag.

3.4 Yarns. The yarns for both warp and weft shall be continuous filament, bright, high tenacity nylon, twisted with cotton singles yarn.

3.5 Fabric. When tested in accordance with the applicable test methods, the finished fabric shall comply with the requirements specified in Table I for Types I and V; and in Table II for Types II, III, and IV, and VI.

3.6 Colour.

3.6.1 Types I and V shall be printed in a wet process with dyes. Printing is to be carried out on pre-dyed goods. Only vat dyestuffs for the cotton component and acid dyestuffs for the nylon component are acceptable for both dyeing and printing operations. Colours are defined numerically in DSSPM 2-2-80-500 and DSSPM 2-2-80-501 and allowed tolerances are included. The final colours achieved must meet these requirements, while the sealed patterns serve as visual guides to the colours. Overall print quality, including colour penetration (i.e. the overall colouring of the wrong side of the printed cloth), uniformity of each colour, clarity, definition, evenness, and all other qualities indicative of a good print must be at least as good as depicted by the respective Sealed Patterns DSSPM 259-01 and DSSPM 253-02. Minimal flare or metamerism is required when viewed under standard daylight, horizon, and fluorescent light for all colours.

Note: Colour measurement taken after 15 launderings

de combat opérationnelles des Forces canadiennes, principalement pour les chemises, pantalons, combinaisons, chapeaux et couvre-casque.

3.2 Le tissu visé par la présente spécification doit être exempt de défauts pouvant nuire à son aspect ou à sa tenue en service. À des fins d'inspection, sont considérés comme défauts ceux qui sont clairement visibles à une distance d'inspection normale d'environ un mètre sous un bon éclairage, de préférence la lumière du nord. Aucun défaut dans le tissage ou les fils n'est acceptable si l'intégrité de l'enduit est en cause.

3.3 Modèles réglementaires. Les modèles réglementaires, quand ils sont fournis, doivent constituer la norme uniquement en ce qui concerne les propriétés qui ne sont pas définies aux présentes, compte tenu des notes qui peuvent figurer au verso de l'étiquette du modèle réglementaire. Les modèles réglementaires sont par ailleurs fournis à titre indicatif.

3.4 Fils. Les fils de chaîne et de trame doivent être en filaments continus, lustrés, à haute ténacité, retors avec fils de coton simples.

3.5 Tissu. Lors des essais réalisés conformément aux méthodes d'essai applicables, le tissu fini doit être conforme aux exigences prescrites au tableau I, pour les types I et V, et au tableau II, pour les types II, III et IV et VI.

3.6 Couleur.

3.6.1 Les tissus de types I et V doivent être imprimés par un procédé au mouillé, avec des colorants.

L'impression doit être effectuée sur des tissus teints au préalable. Seuls des colorants de cuve pour les composants en coton et des colorants acides pour les composants de nylon sont acceptables pour les opérations de teinture et d'impression. Les couleurs sont définies numériquement dans les documents DSSPM 2-2-80-500 et DSSPM 2-2-80-501 et les tolérances autorisées y sont indiquées. Les couleurs finales obtenues doivent répondre à ces exigences, les modèles réglementaires servant de guides visuels pour les couleurs. La qualité globale de l'impression, y compris la pénétration de la couleur (c.-à-d. la coloration globale de l'envers du tissu imprimé), l'uniformité de chaque couleur, la clarté, la définition, la régularité, et toutes les autres qualités indicatives d'une bonne impression, doit être au moins aussi bonne que celle des modèles réglementaires respectifs DSSPM 259-01 et DSSPM 253-02. Les tissus doivent présenter un éclat ou un

when laundered in accordance with CAN/CGSB-4.2 Test Method 58 III.E.3 must be submitted when requested. Compliance with DSSPM 2-2-80-500 or DSSPM 2-2-80-501 is not required after 15 launderings for the time being.

3.6.2 Types II, III, IV, and VI shall be dyed in a wet process with the cotton component dyed with vat dyestuffs and the nylon component with acid or neutral pre-metalized dyestuffs. Colour requirements for Type II are defined in Appendix I. Sealed pattern DSSPM 281-01 may be used as a colour guide. For Types III, IV and VI the sealed patterns represent the colour required, and a good visual match under north daylight is required. Minimal flare or metamerism is required when viewed under standard daylight, horizon, and fluorescent light for all colours. For Type VI colour UN Blue, Pantone Textile Colour Number 16-413TC may be used as a guide, however, Sealed Pattern DSSPM 252-04 accurately represents the required and approved colour.

3.6.3 Complete penetration of both component fibres is required. Colour shall be uniform across both fibres such that colour speckling does not occur. After printing and/or dyeing in an aqueous medium the fabrics shall be stabilized by drying, heat setting, and sanforizing if required to achieve the desired properties defined in Tables I and II, and soft hand as depicted by the sealed patterns.

3.7 Infra-red Reflection. For Types I and V, the required IRR characteristics are defined in Specifications DSSPM 2-2-80-500 and DSSPM 2-2-80-501, as applicable. For Type II, the colour coordinates and IRR requirements are included in this specification in Appendix I. These requirements must be met both when manufactured and after 15 laundering cycles when laundered in accordance with CAN/CGSB-4.2 Test Method 58 (see Tables I and II).

métamérisme minimal lorsqu'on les examine à la lumière du jour, contre l'horizon et sous une lumière fluorescente, et ce, pour toutes les couleurs.

Remarque : Les résultats des mesures colorimétriques effectuées après 15 cycles de blanchissage effectués conformément à la norme CAN/CGSB-4.2 58, méthode d'essai III.E. 3, doivent être présentés sur demande. Le respect des documents DSSPM 2-2-80-500 ou DSSPM 2-2-80-501 n'est pas nécessaire après 15 cycles de blanchissage, pour le moment.

3.6.2 Les tissus de type II, III, IV et VI doivent être teints par un procédé au mouillé, les composants en coton étant teints avec des colorants de cuve et les composants de nylon avec un colorant acide ou prémétallisé neutre. Les exigences colorimétriques pour le tissu de type II sont définies à l'annexe I. On peut utiliser le modèle réglementaire DSSPM 281-01 comme guide des couleurs. Pour les tissus de type III, IV et VI, les modèles réglementaires représentent la couleur désirée, et un bon appariement visuel à la lumière diurne du nord est requis. Les tissus doivent présenter un éclat ou un métamérisme minimal lorsqu'on les examine à la lumière du jour, contre l'horizon et sous une lumière fluorescente, et ce, pour toutes les couleurs. Pour le tissu de type VI (bleu des Nations Unies), on peut utiliser la couleur de textile Pantone numéro 16-413TC comme guide; cependant, le modèle réglementaire DSSPM 252-04 représente précisément la couleur requise et approuvée.

3.6.3 La pénétration complète des deux fibres composant le tissu est requise. La couleur doit être homogène dans les deux fibres, de sorte qu'il n'y ait pas de tacheture des couleurs. Après l'impression ou la teinture dans un milieu aqueux, les tissus doivent être convenablement stabilisés par des procédés tels que le séchage, le thermofixage et le sanforisage au besoin, pour obtenir les propriétés désirées définies dans les tableaux I et II, et présenter un toucher doux selon les indications des modèles réglementaires.

3.7 Réflectance dans l'infrarouge. Pour les types I et V, les caractéristiques RIR sont définies dans les spécifications DSSPM 2-2-80-500 et DAPES 2-2-80-501, le cas échéant. Pour le type II, les coordonnées colorimétriques et les exigences pour la RIR sont incluses cette spécification, à la fin (Annexe I). Ces exigences doivent être respectées à la fabrication et après 15 cycles de blanchissage quand celui-ci est réalisé conformément à la norme CAN/CGSB-4.2, méthode d'essai 58 (voir les tableaux I et II).

3.8 Finish. No finish will be applied to obtain fabric stability. Fabric finish shall be in accordance with either Sealed Pattern DSSPM 259-01 for Type I CADPAT™(TW), DSSPM 281-01 for Types II, III, IV, and VI, and DSSPM 253-02 for Type V, and para 3.6.3.

3.9 Length.

3.9.1 For delivery to the Department of National Defence and unless otherwise specified in contractual documents, the cloth shall be delivered in pieces of approximately 100 metres with no more than two lengths per piece, the shorter of which shall be not less than 20 metres.

3.9.2 When made under contract to a Defence supplier and not for delivery direct to the Crown, para 3.9.1 above need not apply.

3.10 Piece Marking. Each piece shall have a label attached to the selvage at one end. The label shall be made of linen or heavy cardboard, with a reinforced eyelet for attaching a tying cord, and shall be legibly marked with the following information:

- (a) Contractor's identification
- (b) Contract Number
- (c) Gross length in metres, including allowance
- (d) Net length in metres
- (e) Piece number
- (f) Number of lengths per piece
- (g) Nomenclature/Classification (para 1.2)
- (h) Colour
- (i) NATO Stock Number
- (j) Date of manufacture

All of the above information is required when the goods are contracted for and being delivered directly to the Crown. When contracted by a third party with delivery not to the Crown, only (a), (e), (g), (h), (j), and (k) are

3.8 Fini. Aucun fini ne sera appliqué pour obtenir une stabilité du tissu. Le tissu fini doit être conforme au modèle réglementaire DSSPM 259-01 pour le DCamC^{MC} (RBT) type 1, DSSPM 281-01 pour les types II, III, IV et VI, et DSSPM 253-02 pour le type V, ainsi qu'aux exigences du paragraphe 3.6.3.

3.9 Longueur.

3.9.1 Sauf indication contraire dans les documents contractuels, le tissu doit être livré au ministère de la Défense nationale en pièces d'environ 100 m de longueur avec au plus deux longueurs par pièce, dont la plus courte ne doit pas être inférieure à 20 m.

3.9.2 Lorsque le tissu est fabriqué sous contrat pour un fournisseur du MDN et n'est pas livré directement au gouvernement, le paragraphe 3.8.1 ci-dessus ne s'applique pas.

3.10 Marquage des pièces. Chaque pièce de tissu doit porter, à une extrémité, une étiquette fixée à la lisière. L'étiquette doit être en toile de lin, en oléfine thermoliée ou en carton fort et percée d'un œillet renforcé permettant d'attacher une ficelle; elle doit porter les indications suivantes en caractères lisibles :

- (a) Identification de l'entrepreneur
- (b) Numéro du contrat
- (c) Longueur brute en mètres, y compris la réserve
- (d) Longueur nette en mètres
- (e) Numéro de la pièce
- (f) Nombre de longueurs par pièce
- (g) Nomenclature / classification (par. 1.2)
- (h) Couleur
- (i) Numéro de nomenclature OTAN
- (j) Date de fabrication

Tous les renseignements ci-dessus sont requis lorsque les marchandises sont obtenues dans le cadre d'un contrat et sont livrées directement au gouvernement. Lorsque les marchandises sont obtenues par contrat par

mandatory. The other information must be readily available to the Crown and/or its contractor if required.

4. QUALITY CONTROL/INSPECTION

4.1 Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspections and tests as specified herein and to demonstrate that the materiel and services conform to the requirements specified in this Specification. Contractors may utilize their own or any other inspection facility acceptable to the Crown or its designated representative. Contractors may also utilize their own test facilities so long as Crown approval has been obtained in advance and the conditions stated in ISO quality and manufacturing publications are followed.

4.2 The Crown reserves the right to perform any of the inspections or tests specified herein, where such are deemed necessary to ensure the materiel and/or services submitted to the Crown for acceptance meet all requirements of the contract. This applies equally to materiel contracted for delivery directly to the Department of National Defence or as component parts to a supplier with a contract for products for Defence use.

5. PACKAGING

5.1 Unless otherwise specified, packaging, packing, and marking of shipping containers shall be in accordance with the terms of the contract.

6. NOTES

6.1 Ordering data. Procurement documents should specify the following:

- (a) title, number and date of this Specification
- (b) NATO Stock number of required item
- (c) Nomenclature/Classification (para 1.2)

une tierce partie sans être livrées au gouvernement, seuls les éléments a), e), g), h), j), et k) sont obligatoires. Les autres renseignements doivent être facilement accessibles pour le gouvernement ou son entrepreneur, le cas échéant.

4. CONTRÔLE DE LA QUALITÉ/INSPECTION

4.1 Sauf indication contraire dans le contrat ou les documents d'achat, l'entrepreneur est tenu d'effectuer toutes les inspections et les essais prescrits ci-après afin de démontrer que les matériaux et les services sont conformes aux exigences énoncées dans la présente spécification. L'entrepreneur peut utiliser ses propres installations d'inspection ou avoir recours à toute autre installation jugée acceptable par le gouvernement ou son représentant désigné. L'entrepreneur peut également utiliser ses propres installations d'essai, pourvu qu'il ait obtenu à l'avance l'approbation du gouvernement et que les conditions décrites dans les publications de l'ISO sur la fabrication et la qualité soient respectées.

4.2 Le gouvernement se réserve le droit d'effectuer toute vérification ou tout essai jugé nécessaire pour s'assurer que le matériel et les services présentés au gouvernement pour acceptation sont conformes à toutes les exigences énoncées dans le contrat. Ceci s'applique également au matériel obtenu sous contrat qui doit être livré directement au ministère de la Défense nationale ou comme composants livrés à un fournisseur dans le cadre d'un contrat pour des produits à des fins militaires.

5. CONDITIONNEMENT

5.1 Sauf indication contraire, le conditionnement, l'emballage et le marquage des conteneurs d'expédition doivent être conformes aux modalités du contrat.

6. REMARQUES

6.1 Données de commande. Les documents d'achat doivent préciser :

- (a) Titre, numéro et date de la présente spécification
- (b) Numéro de nomenclature OTAN des articles requis
- (c) Nomenclature / classification (par. 1.2)

- (d) Pre-production requirements
- (e) Packaging, packing, and marking of shipping containers
- (f) The Design Authority
- (g) The Quality Assurance Authority

- (d) Exigences de présérie
- (e) Conditionnement, emballage et marquage des conteneurs d'expédition
- (f) Autorité responsable de la conception
- (g) Autorité responsable de l'assurance de la qualité

6.2 Definition of Terms

6.2.1 Design Authority. The Design Authority is the Government agency responsible for the technical aspects of the design and for changes to the design. The Design Authority for this requirement is the Director of Soldier Systems Programme Management (DSSPM), Department of National Defence.

6.2.2 Quality Assurance Authority. The Quality Assurance Authority is the Government agency responsible for providing assurance the materiel and services supplied by the contractor are in accordance with the terms of the contract. The Quality Assurance Authority is the Directorate of Quality Assurance (DQA), Department of National Defence.

6.2.3 Master Sealed Pattern. A master sealed pattern is the authorized prototype of the item to be produced and is held only by the government.

6.2.4 Sealed Pattern. The sealed pattern is a duplicate of the master sealed pattern which is the Department of National Defence's authorized prototype of the item to be produced. Sealed patterns are available for the contractor to use as a *conceptual example for production*. Contractors should note that sealed patterns may not incorporate all the details cited in this Specification and the order of precedence prevails (see para 2.5).

6.2.5 Specification Copies. Copies of this Specification are available from the Department of National Defence, Directorate of Soldier Systems Programme Management, Ottawa, Ontario, K1A 0K2, Attention: DSSPM 2.

6.2 Définition des termes.

6.2.1 Autorité responsable de la conception. L'autorité responsable de la conception est l'organisme gouvernemental chargé des aspects techniques de la conception et des modifications connexes. Dans le cas des articles visés par la présente spécification, il s'agit de la Direction – Administration du programme de l'équipement du soldat (DAPES).

6.2.2 Autorité responsable de l'assurance de la qualité. L'autorité responsable de l'assurance de la qualité est l'organisme gouvernemental chargé d'assurer que le matériel et les services fournis par l'entrepreneur satisfont aux modalités du contrat. L'autorité responsable de l'assurance de la qualité est le directeur de l'assurance de la qualité, ministère de la Défense nationale du Canada.

6.2.3 Modèle réglementaire principal. Prototype autorisé de l'article qui doit être fabriqué et dont le gouvernement est le seul détenteur.

6.2.4 Modèle réglementaire. Copie exacte du modèle réglementaire principal, qui est le prototype autorisé par le ministère de la Défense nationale pour l'article qui doit être fabriqué. Les modèles réglementaires sont mis à la disposition de l'entrepreneur comme exemple conceptuel pour la production. Les entrepreneurs doivent prendre note que les modèles réglementaires n'incorporent pas nécessairement tous les détails indiqués aux présentes, en cas de divergence, l'ordre de préséance mentionné au paragraphe 2.5 prévaut.

6.2.5 Copies de la spécification. Des copies de la présente spécification peuvent être obtenues auprès du ministère de la Défense nationale, Direction de l'administration du programme de l'équipement du soldat, Ottawa (Ontario), K1A 0K2, à l'attention de : DAPES 2-2.

7. MANUFACTURING GUIDELINE

7. DIRECTIVES POUR LA FABRICATION

7.1 The information detailed below has been found satisfactory for the manufacture of fabric meeting the requirements of this Specification, and is given as a guide. As manufacturing conditions can introduce differences in performance, the use of this information is not a guarantee that the cloth will be acceptable, as all requirements of this whole Specification document must be met.

7.2 Yarns

7.2.1 Warp. Nylon: 1 end of 156 dtex continuous filament OR 2 ends of 78 dtex continuous filament.

Twist: ITPI "Z"

Cotton: 1 end 166 dtex

Twist factor: 3.75 "Z" twist

7.2.2 Weft. Same as warp (see para 7.2.1)

7.2.3 Ply Twist. Twist Factor: 3.75 "S" twist. Care shall be taken in applying tension to the twist components during the twisting operation, to ensure that yarn distortion of either component does not occur in weaving. It has been found in general that applying more tension to the cotton component than to the filament nylon is very helpful in reducing yarn distortion. Ply twist factors are as follows:

Selvedge	1 cm each side, yarn as warp
Weave	plain
Reed	14 by 4
Picks per cm	21 (greige)
Mass	170 g/sq. m. (greige)

7.1 Les informations ci-dessous ont été jugées satisfaisantes pour la fabrication du tissu répondant aux exigences de la présente spécification et sont présentées à titre indicatif. Comme les conditions de fabrication peuvent introduire des différences dans le rendement du produit, l'utilisation de ces informations ne garantit pas que le tissu sera acceptable, car toutes les exigences du présent document de spécification doivent être respectées.

7.2 Fils

7.2.1 Chaîne. Nylon: 1 fil de filaments continus de 156 dtex ou 2 fils de filaments continus de 78 dtex.

Torsion : « Z » ITPI

Coton : 1 fil 166 dtex

Facteur de torsion : 3,75 torsions « Z »

7.2.2 Trame. Identique à la chaîne (voir 7.2.1)

7.2.3 Torsion de retordage. Facteur de torsion : 3,75 torsions « S ». On doit prendre garde quand on applique la tension aux composants torsadés au cours de l'opération de torsion, afin qu'il n'y ait pas de distorsion des fils de l'un ou l'autre composant pendant le tissage. Il a été constaté en général que l'application d'une plus grande tension au composant en coton qu'au filament de nylon est très utile pour réduire la distorsion des fils. Les facteurs de torsion de retordage sont les suivants :

Lisière	1 cm de chaque côté, comme fil de chaîne
Armure	Unie
Peigne	14 par 4
Duites par cm	21 (tissu écru)
Masse	170 g/m ² (tissu écru)

Table I
Requirements for Finished Fabric, Types I & V, CADPAT™

PROPERTY	TEST METHOD	SPECIFIED REQUIREMENTS	MINIMUM ACCEPTABLE	MAXIMUM ACCEPTABLE
Fibre content	14.3*	50% cotton 50% nylon	45% cotton 45% nylon	55% cotton 55% nylon
Weave		plain		
Mass	5.1*	170 g/m ²	161 g/m ²	179 g/m ²
Width (excluding selvedge)	4.1*	152 cm	150 cm	154 cm
Woven Count yarns per cm	6*	warp: 25 weft: 22	warp: 24 weft: 20	
Breaking Strength	9.1* (Test 6.1)	warp: 1045N weft: 930N	warp: 934N weft: 840N	
Tear strength	12.1*	warp: 49N weft: 49N	warp: 36N weft: 36N	
Colour fastness to light, each colour	16** Option 3	Grey Scale 4 After 40 AATCC Fading Units	Grey Scale 3-4 After 40 AATCC Fading Units	
Colour fastness to crocking, each colour dry wet	116**	 Colour change GS 5 Colour change GS 5		 Colour change GS 3-4 Colour change GS 3
Colour fastness to laundering, each colour	19.1* Test 2	Colour change GS 5 Staining GS 5		Colour change GS 4 Staining GS 3
Colour fastness to water, each colour	20*	Colour change GS 5 Staining GS 5		Colour change GS 4 Staining GS 4
Colour fastness to perspiration, each colour	23*	Colour change GS 5 Staining GS 5		Colour change GS 4 Staining GS 4
Dimensional stability in laundering (after 3 cycles)	24.2* or 58* Test III.E.3			warp 2% weft 2%
Resistance to abrasion	5306*** 75 revolutions, H-18 calibrase wheels, 500 grams pressure			.08 gram weight loss
Air permeability	36*		55 cm ³ /cm ² .s ⁻¹	
pH	2811***	6.5 to 8.5		
IRR		para 3.7		
Colour		para 3.6.1		

* CAN/CGSB-4.2 Textile Test Methods

** AATCC Technical Manual

*** FED-STD-191 Textile Test Methods

Tableau I
Exigences pour le tissu fini, types I et V, DCamC^{MC}

PROPRIÉTÉ	MÉTHODE D'ESSAI	EXIGENCES PRESCRITES	MINIMUM ACCEPTABLE	MAXIMUM ACCEPTABLE
Teneur en fibres	14.3*	50 % coton 50 % nylon	45 % coton 45 % nylon	55 % coton 55 % nylon
Armure		unie		
Masse	5.1*	170 g/m ²	161 g/m ²	179 g/m ²
Largeur (lisières non comprises)	4.1*	152 cm	150 cm	154 cm
Contexture	6*	Chaîne : 25 trame : 22	Chaîne : 24 Trame : 20	
Nombre de fils/cm				
Résistance à la rupture	9.1* (Essai 6.1)	Chaîne : 1045 N Trame : 930 N	Chaîne : 934 N Trame : 840 N	
Résistance au déchirement	12.1*	Chaîne : 49 N Trame : 49 N	Chaîne : 36 N Trame : 36 N	
Solidité de la couleur à la lumière	16** option 3	Échelle de gris 4 après l'exposition à 40 unités de décoloration de l'AATCC	Échelle de gris 3-4 après l'exposition à 40 unités de décoloration de l'AATCC	
Solidité de la couleur au frottement sec mouillé	116**	Changement de couleur : Échelle de gris 5 Changement de couleur : Échelle de gris 5		Changement de couleur Échelle de gris 3-4 Changement de couleur Échelle de gris 3
Solidité de la couleur au lavage	19.1* Essai n° 2	Changement de couleur : Échelle de gris 5 Tachage Échelle de gris 5		Changement de couleur Échelle de gris 4 Tachage Échelle de gris 3
Solidité de la couleur à l'eau	20*	Changement de couleur : Échelle de gris 5 Tachage Échelle de gris 5		Changement de couleur Échelle de gris 4 Tachage Échelle de gris 4
Solidité de la couleur à la sueur	23*	Changement de couleur Échelle de gris 5 Tachage Échelle de gris 5		Changement de couleur Échelle de gris 4 Tachage Échelle de gris 4
Stabilité dimensionnelle au blanchissage (après 3 cycles)	24.2* ou 58* Essai III.E.3			Chaîne 2 % Trame 2 %
Résistance à l'abrasion	5306*** 75 révolutions, roues à l'émeri H-18, pression de 500 g			Perte de poids de 0,08 g
Perméabilité à l'air	36*		55 cm ³ /cm ² .s ⁻¹	
pH	2811***	6.5 à 8.5		
RIR		3.7		
Couleur		3.6.1		

* CAN/CGSB-4.2 Méthodes pour épreuves textiles

** AATCC Technical Manual

*** FED-STD-191 Textile Test Methods

Table II
Requirements for Finished Fabric, Types II, III, IV, & VI

PROPERTY	TEST METHOD	SPECIFIED REQUIREMENTS	MINIMUM ACCEPTABLE	MAXIMUM ACCEPTABLE
Fibre content	14.3*	50% cotton 50% nylon	45% cotton 45% nylon	55% cotton 55% nylon
Weave		plain		
Mass	5.1*	170 g/m ²	161 g/m ²	179 g/m ²
Width (excluding selvedge)	4.1*	152 cm	150 cm	154 cm
Woven Count yarns per cm	6*	warp: 25 weft: 22	warp: 24 weft: 20	
Breaking Strength	9.1* (Test 6.1)	warp: 1045N weft: 930N	warp: 934N weft: 840N	
Tear strength	12.1*	warp: 49N weft: 49N	warp: 36N weft: 36N	
Colour fastness to light	16** Option 3	Grey Scale 4 After 40 AATCC Fading Units	Grey Scale 3-4 After 40 AATCC Fading Units	
Colour fastness to crocking dry wet	116**	Colour change GS 5 Staining GS 5 Colour change GS 5 Staining GS 5		Colour change GS 4 Staining GS 4 Colour change GS 4 Staining GS 4
Colour fastness to laundering	19.1* Test 2	Colour change GS 5		Colour change GS 4
Colour fastness to water	20*	Colour change GS 5 Staining GS 5		Colour change GS 4 Staining GS 4
Colour fastness to perspiration	23*	Colour change GS 5 Staining GS 5		Colour change GS 4 Staining GS 4
Dimensional stability in laundering (after 3 cycles)	24.2* or 58* Test III.E.3			warp 2% weft 2%
Resistance to abrasion	5306*** 75 revolutions, H-18 calibrase wheels, 500 grams pressure			.08 gram weight loss
Air permeability	36*		55 cm ³ /cm ² .s ⁻¹	
pH	2811***	6.5 to 8.5		
IRR for Type II		para 3.7		
Colour		para 3.6.2		

* CAN/CGSB-4.2 Textile Test Methods

** AATCC Technical Manual

*** FED-STD-191 Textile Test Method

Tableau II
Exigences pour le tissu fini, types II, III, IV et VI

PROPRIÉTÉ	MÉTHODE D'ESSAI	EXIGENCES PRESCRITES	MINIMUM ACCEPTABLE	MAXIMUM ACCEPTABLE
Teneur en fibres	14.3*	50 % coton 50 % nylon	45 % coton 45 % nylon	55 % coton 55 % nylon
Armure		unie		
Masse	5.1*	170 g/m ²	161 g/m ²	179 g/m ²
Largeur (lisières non comprises)	4.1*	152 cm	150 cm	154 cm
Contexture	6*	Chaîne : 25 Trame : 22	Chaîne : 24 Trame : 20	
Nombre de fils/cm				
Résistance à la rupture	9.1* (Essai 6.1)	Chaîne : 1045 N Trame : 930 N	Chaîne : 934 N Trame : 840 N	
Résistance au déchirement	12.1*	Chaîne : 49 N Trame : 49 N	Chaîne : 36 N Trame : 36 N	
Solidité de la couleur à la lumière	16** option 3	Échelle de gris 4 après l'exposition à 40 unités de décoloration de l'AATCC	Échelle de gris 3-4 après l'exposition à 40 unités de décoloration de l'AATCC	
Solidité de la couleur au frottement sec mouillé	116**	Changement de couleur : Échelle de gris 5 Tachage Échelle de gris 5 Changement de couleur : Échelle de gris 5 Tachage Échelle de gris 5		Changement de couleur Échelle de gris 4 Tachage Échelle de gris 4 Changement de couleur Échelle de gris 4 Tachage Échelle de gris 4
Solidité de la couleur au lavage	19.1* Essai n° 2	Changement de couleur : GS 5		Changement de couleur Échelle de gris 4
Solidité de la couleur à l'eau	20*	Changement de couleur : Échelle de gris 5 Tachage Échelle de gris 5		Changement de couleur Échelle de gris 4 Tachage Échelle de gris 4
Solidité de la couleur à la sueur	23*	Changement de couleur Échelle de gris 5 Tachage Échelle de gris 5		Changement de couleur Échelle de gris 4 Tachage Échelle de gris 4
Stabilité dimensionnelle au blanchissage (après 3 cycles)	24.2* ou 58* Essai III.E.3			chaîne 2 % trame 2 %
Résistance à l'abrasion	5306*** 75 révolutions, roues à l'émeri H-18, pression de 500 g			Perte de poids de 0,08 g
Perméabilité à l'air	36*		55 cm ³ /cm ² .s ⁻¹	
pH	2811***	6.5 à 8.5		
RIR pour le type II		par. 3.7		
Couleur		par. 3.6.2		

* CAN/CGSB-4.2 Méthodes pour épreuves textiles

** AATCC Technical Manual

*** FED-STD-191 Textile Test Method

**APPENDIX I to
DSSPM 2-2-80-023**

**REQUIREMENTS FOR CANADIAN
AVERAGE GREEN FOR COLOUR AND
INFRA-RED REFLECTION**

1. The colour requirements and IRR requirements are found on the following pages.
2. All measurements are to be made in accordance with CIE publication 15.2 and ASTM E308.99 using CIE Illuminant C and a 2 degree observer, specular component included. These conditions of measurement must be followed and included in all test reports.^{see notes}
3. Sample preparation for all chromaticity and IRR measurements shall be in accordance with AATCC Instrumental Measurement Procedure #6, A1.3, non-opaque samples.^{see notes} (It has been found that 3 layers of self fabric on a black backing may provide consistent readings. It is the responsibility of the operator to determine and follow a standard sample preparation which meets the stated conditions.)
4. Tolerance is plus/minus 1.5 CIE LAB units for each coordinate ($L^*a^*b^*$ values, not deltas). Maximum tolerance is 2 CIE LAB units.
5. Gloss values shall be less than 1 unit at 20, 60, and 85 degrees.
6. Infra-red values shall lie between the proscribed plus/minus standard deviation (SD) and are to be applied to the substrate as follows:

Canadian Average Green - as specified
(average reflectance)

7. Infra-red requirements must be met both when

**ANNEXE I du document
DAPES 2-2-80-023**

**EXIGENCES RELATIVES À LA COULEUR
ET À LA RÉFLECTANCE DANS
L'INFRAROUGE POUR LE VERT
CANADIEN MOYEN**

1. Les exigences pour la couleur et la RIR sont présentées dans les pages suivantes.
2. Toutes les mesures doivent être effectuées conformément aux publications CIE 15.2 et ASTM E308.99 à l'aide de l'illuminant C et de l'observateur à 2° de la CIE, composante spéculaire incluse. Ces conditions de mesure doivent être respectées et incluses dans tous les rapports d'essai.
^{Voir les notes.}
3. La préparation des échantillons pour toutes les mesures de couleur et de RIR doit être réalisée conformément à la procédure de mesure instrumentale n° 6 de l'American Association of Textile Chemists and Colorists (AATCC), A1.3, pour des échantillons non opaques.^{Voir les notes.} (On a constaté que trois épaisseurs de tissu extérieur sur un fond noir peuvent donner une lecture uniforme.) Il incombe à l'opérateur de déterminer et de suivre un protocole standard de préparation des échantillons qui répond aux conditions énoncées.
4. La tolérance est de $\pm 1,5$ unité CIE LAB pour chaque coordonnée (valeurs $L^*a^*b^*$, pas les valeurs delta). La tolérance maximale est de 2 unités CIE LAB.
5. Les valeurs de lustre doivent être inférieures à une (1) unité à 20°, 60° et 85° lorsque le lustre est une exigence prescrite.
6. Les valeurs dans l'infrarouge doivent être comprises en deçà de l'écart type indiqué (\pm) et être appliquées au substrat comme suit :

Vert canadien moyen – selon ce qui est indiqué
(réflectance moyenne)

7. Les exigences pour l'infrarouge doivent être

manufactured (new) and after 15 laundering cycles when laundered in accordance with CAN/CGSB-4.2 Test Method 58, III.E.3.

8. The on-going Canadian requirement is for IRR values ranging from 400nm to 2000nm as shown in the following pages. Currently compliance is mandatory from 400nm to 1300nm. Every effort should be made to meet the required curves beyond 1300nm, however compliance is not mandatory at this time. Because the specification calls for 400 to 2000 nm, testing must be conducted over this full range, not just the mandatory range.

Note 1: Referee conditions are: - diffuse spectral 8° /hemispherical reflectance factors using a 150 mm diameter integrating sphere accessory coated with BaSO₄
- measurements made at 1 mm intervals over the entire required range with a fixed spectral bandpass of 5 nm up to 860 nm and a variable spectral bandpass of <20 nm from 860 nm to 2000 nm
- measurement geometry 8° incidence, hemispherical collection ($8^\circ/t$), with the spectral component included

Note 2: Referee sample measurement: the irradiated area to be 8 mm x 15 mm with a bandpass of 5 nm (preferred)
- where sample necessary, irradiated area may be reduced to 4 mm x 9 mm with the bandpass also reduced to 2 nm

Note 3: Where it is impractical to follow this preparation method, a single layer of the sample may be backed by NRC (National Research Council) standard black felt backing, Reference REN09870.DAT

respectées pour les tissus fabriqués (neufs) et après 15 cycles de blanchissage selon la norme CAN/CGSB-4.2, procédure d'essai 58, III.E.3.

8. Selon les exigences canadiennes actuelles, on doit respecter les valeurs RIR entre 400 et 2 000 nm, comme il est indiqué dans les pages qui suivent. Actuellement, la plage obligatoire va de 400 à 1 300 nm. On ne devrait ménager aucun effort pour respecter les courbes requises au-delà de 1 300 nm; toutefois, cette exigence n'est pas obligatoire pour le moment. Comme la spécification précise la plage de 400 à 2 000 nm, des essais doivent être réalisés dans toute cette plage, et non seulement dans la plage obligatoire

Remarque 1 : Conditions de référence : - Facteurs de réflectance spectrale 8° / hémisphérique diffuse utilisant une sphère intégrante de 150 mm de diamètre, enduite de BaSO₄.
- Mesures effectuées à intervalles de 1 mm sur toute la plage requise avec une bande passante spectrale fixe de 5 nm à 860 nm et une bande passante spectrale variable < 20 nm entre 860 nm et 2 000 nm.
- Géométrie de mesure avec incidence de 8° et collecte hémisphérique ($8^\circ/t$), composante spectrale incluse.

Remarque 2 : Mesure des échantillons de référence : la zone irradiée doit être de 8 mm x 15 mm avec une bande passante de 5 nm (de préférence).
- Lorsque la taille des échantillons ou d'autres conditions l'exigent, la zone irradiée peut être réduite à 4 mm x 9 mm et la bande passante à 2 nm.

Remarque 3 : Quand il est impossible de suivre ce protocole de préparation, on peut placer une seule épaisseur de l'échantillon contre un fond en feutre noir standard du CNRC (Conseil national de recherches du Canada), référence REN09870.DAT.

Colour Requirements: Canadian Average Green (single colour fabric)
Exigences relatives aux couleurs : Vert canadien moyen (tissu de même couleur)

SPECIFICATIONS:	
CIE 1931/CIE LAB 1976	x 0.348 - 0.372
ILLUMINANT C, 2 deg.	y 0.374 - 0.386
	Y% 7.00 maximum
	DW,nm 569,36
	S% 38,50
	L* 27,41
	a* -6,78
	b* 16,46

Wavelength nm	Reflection %	ST.DEV. %	Refl. Min %	Refl. Max %	Wavelength nm	Reflection %	ST.DEV. %	Refl. Min %	Refl. Max %
400	1.89	0.77	1.12	8.67	840	42.14	14.80	27.35	62.94
410	1.95	0.85	1.10	8.79	850	42.50	14.90	27.60	63.39
420	2.00	0.93	1.07	8.93	860	42.85	15.00	27.85	63.85
430	2.11	1.04	1.07	9.16	870	43.20	15.11	28.09	64.31
440	2.26	1.17	1.09	9.43	880	43.20	15.05	28.15	64.24
450	2.39	1.28	1.11	9.67	890	43.16	14.99	28.16	64.15
460	2.46	1.33	1.14	9.79	900	43.11	14.94	28.17	64.06
470	2.53	1.37	1.16	9.90	910	43.07	14.90	28.17	63.97
480	2.62	1.43	1.19	10.10	920	43.03	14.86	28.18	63.89
490	2.72	1.50	1.22	10.22	930	43.00	14.82	28.18	63.82
500	2.95	1.63	1.32	10.58	940	42.82	14.76	28.06	63.58
510	3.70	2.02	1.68	11.72	950	42.64	14.70	27.94	63.33
520	4.45	2.44	2.01	12.88	960	42.45	14.64	27.81	63.09
530	5.24	2.84	2.40	14.09	970	42.28	14.60	27.68	62.87
540	6.05	3.26	2.79	15.31	980	42.09	14.56	27.53	62.64
550	6.65	3.59	3.06	16.24	990	41.91	14.52	27.39	62.44
560	6.41	3.53	2.88	15.94	1000	42.56	14.65	27.91	63.20
570	6.17	3.49	2.68	15.65	1010	43.21	14.77	28.43	63.98
580	5.84	3.36	2.48	15.20	1020	43.85	14.90	28.95	64.76
590	5.47	3.22	2.26	14.69	1030	44.45	15.04	29.41	65.49
600	5.14	3.08	2.05	14.22	1040	45.15	15.18	29.97	66.33
610	4.86	2.97	1.89	13.84	1050	45.51	15.22	30.30	66.73
620	4.60	2.88	1.72	13.48	1060	45.59	15.15	30.43	66.74
630	4.39	2.78	1.61	13.16	1070	45.66	15.09	30.56	66.75
640	4.19	2.67	1.52	12.87	1080	45.73	15.04	30.69	66.76
650	3.96	2.54	1.42	12.50	1090	45.81	14.99	30.82	66.79
660	3.65	2.33	1.32	11.98	1100	45.88	14.94	30.94	66.81
670	3.34	2.13	1.21	11.47	1110	44.88	14.74	30.14	65.61
680	4.52	2.71	1.81	13.23	1120	43.87	14.55	29.32	64.42
690	5.87	3.42	2.45	15.30	1130	42.87	14.39	28.48	63.25
700	8.94	4.60	4.34	19.54	1140	41.87	14.24	27.63	62.10
710	14.61	6.69	7.92	27.30	1150	40.86	14.11	26.76	60.97
720	20.27	8.94	11.33	35.21	1160	39.87	14.00	25.87	59.86
730	26.37	10.48	15.89	42.86	1170	38.72	13.46	25.26	58.18
740	32.48	12.31	20.17	50.78	1180	37.49	13.01	24.49	56.50
750	35.95	13.20	22.75	55.15	1190	36.27	12.66	23.61	54.93
760	36.58	13.40	23.18	55.99	1200	35.04	12.43	22.61	53.47
770	37.52	13.62	23.91	57.14	1210	36.48	12.40	24.08	54.88
780	38.46	13.84	24.62	58.29	1220	36.68	12.37	24.31	55.05
790	39.40	14.06	25.34	59.46	1230	36.87	12.35	24.53	55.22
800	40.33	14.29	26.04	60.62	1240	37.07	12.33	24.75	55.40
810	41.28	14.53	26.75	61.81	1250	37.26	12.30	24.96	55.57
820	41.44	14.60	26.83	62.04	1260	37.46	12.28	25.18	55.75
830	41.79	14.70	27.09	62.49	1270	37.65	12.27	25.39	55.92

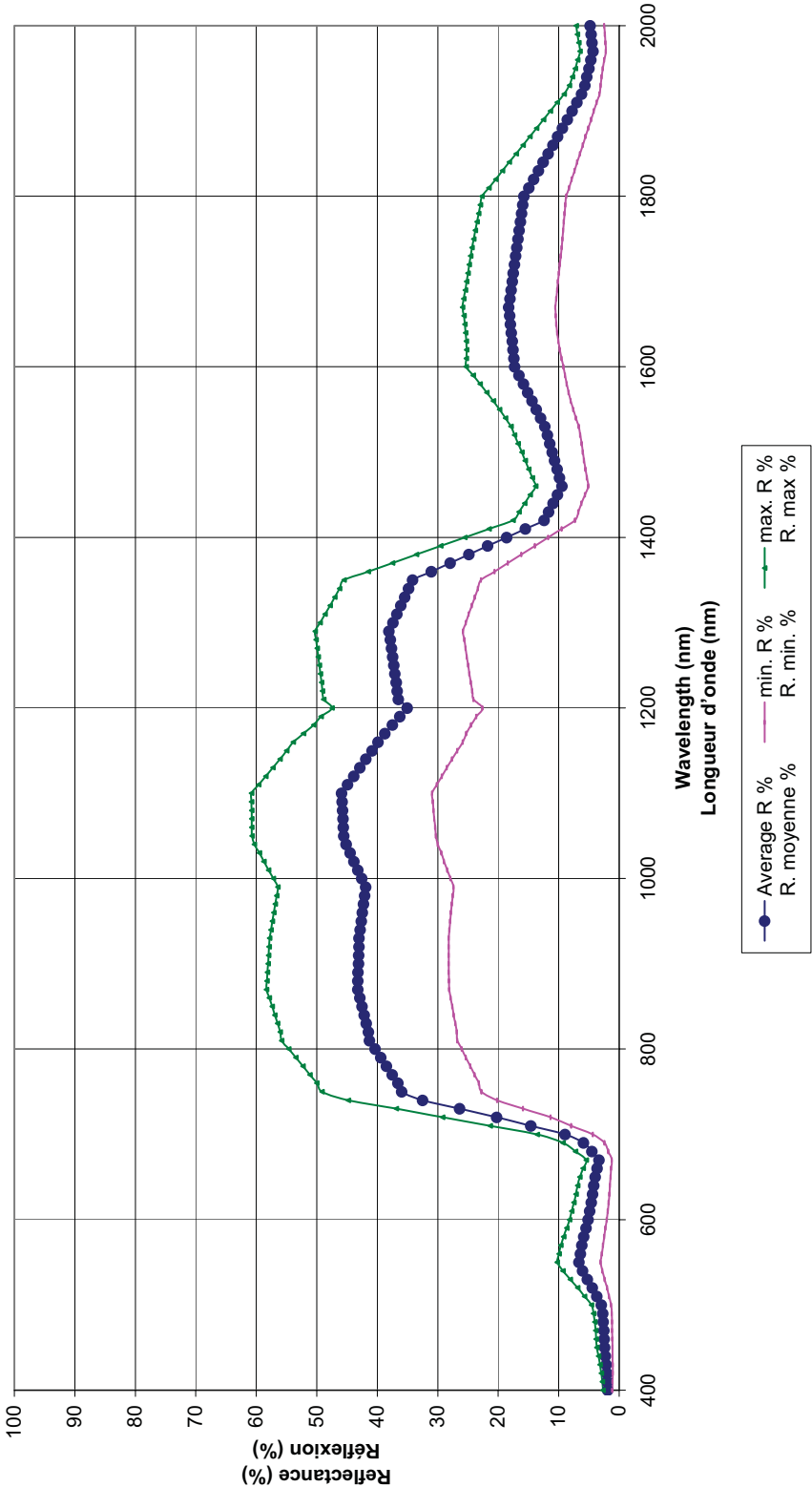
Wavelength nm	Reflection %	ST.DEV. %	Refi. Min %	Refi. Max %	Wavelength nm	Reflection %	ST.DEV. %	Refi. Min %	Refi. Max %
1280	37.85	12.25	25.60	56.10	1720	17.30	7.49	9.81	30.79
1290	38.05	12.24	25.81	56.28	1730	17.11	7.45	9.66	30.56
1300	37.40	12.05	25.36	55.45	1740	16.92	7.42	9.50	30.34
1310	36.75	11.87	24.88	54.62	1750	16.72	7.34	9.38	30.07
1320	36.10	11.71	24.39	53.81	1760	16.52	7.26	9.26	29.79
1330	35.45	11.57	23.88	53.01	1770	16.33	7.18	9.14	29.51
1340	34.80	11.44	23.36	52.23	1780	16.12	7.11	9.02	29.23
1350	34.15	11.32	22.83	51.47	1790	15.92	7.03	8.89	28.96
1360	31.04	10.44	20.61	47.48	1800	15.72	6.96	8.76	28.68
1370	27.94	9.55	18.39	43.49	1810	14.93	6.63	8.30	27.55
1380	24.83	8.66	16.17	39.50	1820	14.13	6.29	7.85	26.42
1390	21.73	7.78	13.95	35.50	1830	13.34	5.95	7.39	25.29
1400	18.62	6.89	11.73	31.51	1840	12.55	5.62	6.93	24.16
1410	15.52	6.00	9.51	27.52	1850	11.75	5.28	6.47	23.03
1420	12.41	5.12	7.29	23.53	1860	10.96	4.94	6.01	21.90
1430	11.67	4.90	6.76	22.57	1870	10.16	4.61	5.56	20.77
1440	10.93	4.70	6.23	21.63	1880	9.37	4.27	5.10	19.64
1450	10.19	4.52	5.67	20.71	1890	8.57	3.94	4.64	18.51
1460	9.46	4.35	5.10	19.81	1900	7.78	3.60	4.18	17.38
1470	9.85	4.52	5.33	20.37	1910	6.99	3.26	3.72	16.25
1480	10.26	4.69	5.56	20.96	1920	6.19	2.93	3.26	15.12
1490	10.66	4.87	5.79	21.53	1930	5.65	2.58	3.07	14.23
1500	11.06	5.05	6.01	22.11	1940	5.32	2.41	2.91	13.73
1510	11.46	5.24	6.22	22.70	1950	4.99	2.28	2.71	13.26
1520	11.86	5.42	6.44	23.39	1960	4.67	2.19	2.48	12.86
1530	12.27	5.61	6.66	23.88	1970	4.33	2.16	2.18	12.49
1540	12.98	5.83	7.16	24.81	1980	4.48	2.21	2.27	12.69
1550	13.69	6.10	7.59	25.79	1990	4.63	2.27	2.36	12.90
1560	14.41	6.42	7.99	26.82	2000	4.79	2.33	2.46	13.12
1570	15.12	6.78	8.34	27.89					
1580	15.83	7.17	8.66	29.00					
1590	16.55	7.60	8.95	30.15					
1600	17.26	8.05	9.21	31.31					
1610	17.40	7.86	9.54	31.26					
1620	17.54	7.72	9.82	31.25					
1630	17.67	7.61	10.06	31.29					
1640	17.82	7.56	10.26	31.38					
1650	17.96	7.55	10.40	31.51					
1660	18.09	7.59	10.49	31.68					
1670	18.23	7.68	10.55	31.92					
1680	18.04	7.64	10.40	31.69					
1690	17.85	7.60	10.25	31.45					
1700	17.67	7.56	10.11	31.23					
1710	17.49	7.52	9.96	31.01					

FIGURE 1 CADPAT™ (TW)

COLOUR: CANADIAN AVERAGE GREEN

FIGURE 1 DCamC^{MC} (RBT)

COULEUR: VERT CANADIEN MOYEN



NOTICE



This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

SPECIFICATION

FOR

CADPAT™ (TW)

[CANADIAN DISRUPTIVE PATTERN
(TEMPERATE WOODLAND)]

SPÉCIFICATION

DCamC^{MC} (RBT)

[DESSIN DE CAMOUFLAGE CANADIEN,
(RÉGIONS BOISÉES TEMPÉRÉES)]

1. SCOPE

1.1 Scope. This specification covers the technical performance requirements for both colour and Infra-red Reflectance for CADPAT™ (TW), Canadian Disruptive Pattern Temperate Woodland. It is intended for use, when specified, for all textiles used by the Canadian Forces for operational clothing and personal equipment. Any allowed deviations from the requirements stated herein shall be clearly defined in procurement documents.

1.2 The information contained herein is Copyright to Her Majesty the Queen of Canada, as is its associated pattern. The term CADPAT™, with and without extensions, is a registered Trademark belonging to the Department of National Defence. Any of the data contained in this specification, and its associated pattern, may be used only for goods for Canada. The printed textile and any items made therefrom shall be for the sole end use of DND. There shall be no selling or offering for sale of goods incorporating the CADPAT™ pattern and colours to any person or entity other than Canada without the Minister's prior written authorization.

1. PORTÉE

1.1 Portée. La présente spécification vise les exigences de rendement technique relatives à la couleur et à la réflectance dans l'infrarouge du dessin de camouflage canadien, régions boisées tempérées [DCamC^{MC} (RBT)]. Elle est destinée à être utilisée, lorsque cela est prescrit, pour tous les tissus employés par les Forces canadiennes dans la confection des vêtements opérationnels et de l'équipement individuel. Tous les écarts autorisés par rapport aux exigences énoncées dans le présent document doivent être clairement définis dans les documents d'achat.

1.2 L'information contenue dans le présent document, ainsi que le modèle associé, sont la propriété de Sa Majesté la Reine du Canada et protégés par droit d'auteur. Le terme DCamC^{MC}, avec ou sans extension, est une marque déposée, propriété du ministère de la Défense nationale. Les données contenues dans la présente spécification et le modèle associé ne peuvent être utilisés que pour des marchandises produites pour le Canada. Les tissus imprimés et tous les articles fabriqués dans ce tissu sont à l'usage final exclusif du MDN. Nul bien incorporant le motif et les couleurs du DCamC^{MC} ne peut être vendu ni offert à toute personne ou entité

OPI/BPR: DSSPM / DAPES 2-11

Canada

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2. APPLICABLE DOCUMENTS

2.1 Government Documents. Copies of this specification may be obtained from the Department of National Defence, Ottawa, Ontario, Canada, K1A 0K2, Attention: DSSPM 2-2.

2.2 Other Publications. The following documents form part of this Specification to the extent specified herein. Effective dates shall be those in effect on the date of manufacture. Sources are as shown.

ASTM International
P.O. Box C700
West Conshohocken, PA
19428-2959, USA

2. DOCUMENTS APPLICABLES

2.1 Documents du gouvernement. Des copies de la présente spécification peuvent être obtenues du ministère de la Défense nationale, Ottawa (Ontario), Canada, K1A 0K2, à l'attention de: DAPES 2-2.

2.2 Autres publications. Les publications suivantes font partie intégrante de la présente spécification selon les modalités indiquées ci-après. La date d'entrée en vigueur doit être celle en vigueur à la date de fabrication. La source de diffusion est celle indiquée.

ASTM International
P.O. Box C700
West Conshohocken, PA
19428-2959, ÉTATS-UNIS

Telephone: 610-832-9585
Email: service@astm.org

AATCC
P.O. Box 12215
Research Triangle Park, NC
27709, USA
Telephone: 919-549-3526
Email: jonesb@aatcc.org

CIE
International Committee on Illumination
CIE Central Bureau
Kegelgasse 27, A-1030
Vienna, Austria

or

Information Handling Services
15 Inverness Way East, M/S B203
Englewood, CO
80112-5776, USA

Téléphone : 610-832-9585
Courriel: service@astm.org

AATCC
P.O. Box 12215
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Courriel: jonesb@aatcc.org

CIE
Commission internationale de l'éclairage
Bureau central de la CIE
Kegelgasse 27, A-1030
Vienne, AUTRICHE

ou

Information Handling Services
15 Inverness Way East, M / S B203
Englewood, CO
80112-5776, ÉTATS-UNIS

2.3 Sealed Patterns. Sealed patterns are made available to the bidders and the contractor(s) as a guide to production. In the case of CADPAT™ the sealed pattern reflects the design, pattern, motifs, repeat, clarity, that is required.

2.3 Modèles réglementaires. Des modèles réglementaires sont mis à la disposition des soumissionnaires et des entrepreneurs comme guide pour la production. Dans le cas du DCamC^{MC}, le modèle réglementaire reflète la conception, le dessin, les motifs, les répétitions et la clarté qui sont requis.

DSSPM 259-01 Cloth, Twist, Nylon/Cotton, Lightweight, CADPAT™ (TW), sealed for colours, motif size, colour distribution, print quality, penetration, clarity and pattern.

DSSPM 259-01 Tissu coton/nylon simple retors, DCamC^{MC} (RBT), pour les couleurs, la taille des motifs, la distribution des couleurs, la qualité de l'impression, la pénétration, la clarté et le modèle.

2.4 Order of Precedence.

2.4.1 In the event of any inconsistency in contract documents such as contract, specification and sealed patterns, the order of precedence shall be contract, specification, and sealed pattern.

2.4.2 In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

2.4.3 In the event of inconsistency within the specification, the Design Authority (DSSPM 2-2) shall be contacted for clarification.

2.4 Ordre de préséance.

2.4.1 En cas d'incohérence entre les documents contractuels, soit le contrat, la spécification et les échantillons réglementaires, l'ordre de préséance est le suivant: le contrat, la spécification et le modèle réglementaire.

2.4.2 En cas de divergence entre les documents mentionnés aux présentes et le contenu de la présente spécification, cette dernière a préséance.

2.4.3 En cas d'incohérence dans l'énoncé de la spécification, il faut communiquer avec l'autorité responsable de la conception (DAPES 2-2) pour obtenir des précisions.

2.4.4 For any inconsistency in technical details between languages, the language of the original document, which in this case is English, shall take precedence.

2.4.4 En cas d'incohérence dans les détails techniques, entre les deux langues, la langue du document d'origine, dans ce cas-ci l'anglais, a préséance.

3. REQUIREMENTS

3. EXIGENCES

3.1 CADPAT™ (TW) specifications. The materiel covered by this specification shall be free from imperfections or blemishes such as may adversely affect its appearance or serviceability. For inspection purposes, imperfections and blemishes shall be considered defects when clearly visible at a normal inspection distance of approximately one metre under good, preferably North Light, lighting conditions.

3.1 Spécification du DCamC^{MC} (RBT). Le tissu visé par la présente spécification doit être exempt d'imperfections ou de défauts qui pourraient nuire à son aspect ou à sa tenue en service. À des fins d'inspection, sont considérés comme défauts ceux qui sont clairement visibles à une distance d'inspection normale d'environ un mètre sous un bon éclairage, de préférence la lumière du nord.

3.2 Sealed Patterns. Sealed patterns, when furnished, shall constitute the standard only in regard to any properties not defined in this Specification, and in association with any notes which may be included on the reverse side of the sealed pattern tag. Under no circumstance are the Sealed Patterns to be mutilated or cut.

3.2 Modèles réglementaires. Les modèles réglementaires, quand ils sont fournis, doivent constituer la norme uniquement en ce qui concerne les propriétés qui ne sont pas définies aux présentes, compte tenu des notes qui peuvent figurer au verso de l'étiquette du modèle réglementaire. En aucun cas, les modèles réglementaires ne doivent être endommagés ni coupés.

3.3 Colour.

3.3 Couleur.

3.3.1 Unless otherwise specified, the printing shall be carried out in a wet process, with dyes. Woven goods shall be pre-dyed prior to printing. Only vat dyestuffs shall be used for any cotton component. Only acid dyestuffs shall be used for any nylon component. Only disperse dyestuffs shall be used for any polyester component. These requirements exist for both dyeing and printing operations.

3.3.1 Sauf indication contraire, l'impression doit être effectuée selon un procédé au mouillé, avec des colorants. Les tissus doivent être teints au préalable, avant l'impression. Seuls des colorants de cuve doivent être utilisés pour tout élément en coton. Seuls des colorants acides doivent être utilisés pour tout élément en nylon. Seuls des colorants dispersés doivent être utilisés pour tout élément en polyester. Les présentes exigences s'appliquent aux opérations de teinture et d'impression.

3.3.2 For CADPAT™(TW) the colours specified in para 3.3.9 below, numerically, must be met, unless otherwise specified in procurement documents, while any sealed pattern provided serves as a guide to the colours. Allowable tolerances are also stated below. Minimal flare when viewed under standard daylight, horizon, and fluorescent light for all colours is required. These colour measurements shall fall within the specified tolerances after 15 laundering cycles when laundered in accordance with the method specified in the applicable cloth specification unless otherwise specified by the applicable cloth specification.

3.3.2 Pour le DCamC^{MC} (RBT), les couleurs précisées sous forme numérique au paragraphe 3.3.9 ci-dessous doivent être respectées, sauf indication contraire dans les documents d'achat, tous les modèles réglementaires fournis devant servir de guide pour les couleurs. Les tolérances admissibles sont également indiquées ci-dessous. Les tissus doivent présenter un éclat minimal lorsqu'on les examine à la lumière du jour, contre l'horizon et sous une lumière fluorescente, et ce, pour toutes les couleurs. Ces mesures de couleur doivent se situer à l'intérieur des tolérances prescrites après 15 cycles de blanchissage selon la méthode décrite dans la norme applicable au tissu, sauf indication contraire.

3.3.3 Print quality. Complete penetration of

3.3.3 Qualité d'impression. La pénétration

all component fibres in the specified cloth is required. Overall print quality, including colour penetration (i.e. the overall colouring of the wrong side of the printed cloth), uniformity of each colour, clarity, definition, evenness, and all other qualities

indicative of a good print must be at least as good as depicted by the Sealed Pattern DSSPM 259-01.

3.3.4 After printing and/or dyeing in an aqueous medium, all fabrics shall be appropriately stabilized by processes such as drying, heat setting, sanforizing, or other appropriate and durable means, if required to achieve the desired properties defined in the applicable Tables of the cloth specifications.

3.3.5 Hand of the finished, printed specified textiles shall be as represented by the appropriate sealed patterns for the finished cloths.

3.3.6 Infra-red Reflection (IRR). The required IRR characteristics are defined in para 3.3.10 and 3.3.11.2 and Tables I, II, III, and IV of this specification, and depicted graphically in Figures I, II, III, and IV of this specification. Note that the requirements are mandatory from 400-1350 nm for Canadian Average Green, from 730 – 1350 nm for Light Green and Brown, and from 400 – 2000 nm for Black. The waveband range 1351 – 2000 nm for colours Canadian Average Green, Light Green, and Brown is not mandatory at this time; however, the Canadian Forces requirement remains as stated in the respective colour tables and should always be any manufacturer's target. Unless otherwise specified for the textile on order, these characteristics must be met both when manufactured (new) and after 15 laundering cycles when laundered in accordance with the method specified in the applicable cloth specification (See para 3.3.11.2).

3.3.7 Finish. No finish will be applied to obtain fabric stability or temporary colour and/or IRR compliance unless required in the applicable textile specification.

3.3.8 Measurement requirements.

3.3.8.1 All measurements for both colour and infra-red reflection are to be made in accordance

complète de toutes les fibres composant le tissu prescrit est requise. La qualité globale de l'impression, y compris la pénétration de la couleur (c.-à-d. la coloration globale de l'envers du tissu imprimé), l'uniformité de chaque couleur, la clarté,

la définition, la régularité, et toutes les autres qualités indicatives d'une bonne impression, doit être au moins aussi bonne que ce qui est indiqué dans le modèle réglementaire DSSPM 259-01.

3.3.4 Après l'impression ou la teinture dans un milieu aqueux, tous les tissus doivent être convenablement stabilisés par des procédés tels que le séchage, le thermofixage, le sanforisage ou tout autre moyen approprié et durable, au besoin, pour obtenir les propriétés désirées définies dans les tableaux applicables de la spécification relative au tissu.

3.3.5 La main des tissus prescrits, finis et imprimés, doit être identique aux modèles réglementaires appropriés des tissus finis.

3.3.6 Réflectance dans l'infrarouge (RIR). Les caractéristiques de la RIR requises sont définies aux paragraphes 3.3.10 et 3.3.11.2 et dans les tableaux I, II, III et IV de la présente spécification, et elles sont représentées graphiquement dans les figures I, II, III et IV. Veuillez prendre note que les exigences sont obligatoires dans la plage de 400 à 1 350 nm pour le vert canadien moyen, de 730 à 1 350 nm pour le vert pâle et le brun, et de 400 à 2 000 nm pour le noir. La plage de longueurs d'ondes de 1 351 à 2 000 nm pour le vert canadien moyen, le vert pâle et le brun n'est pas obligatoire pour le moment; toutefois, les exigences des Forces canadiennes demeurent comme il est indiqué dans les tables de couleurs respectives et le fabricant doit chercher à les respecter. Sauf indication contraire pour le tissu commandé, ces caractéristiques doivent être respectées tant pour les tissus fabriqués (neufs), qu'après 15 cycles de blanchissage selon la méthode décrite dans la spécification relative au tissu (voir le paragraphe 3.3.11.2).

3.3.7 Fini. Aucun fini ne sera appliqué pour obtenir une stabilité du tissu ou le respect temporaire de la couleur ou de la RIR, à moins qu'un tel fini ne soit prescrit dans la spécification relative au tissu.

3.3.8 Exigences relatives aux mesures.

3.3.8.1 Toutes les mesures de couleur et de réflectance dans l'infrarouge doivent être effectuées

with CIE publication 15 - 2004 and ASTM E308.2008 using CIE Illuminant C and a 2 degree observer, specular component included. These conditions of measurement must be followed and included in all test reports.

3.3.8.2 Sample preparation for all chromaticity and IRR measurements shall be in accordance with AATCC Instrumental Measurement Procedure #6, A1.3, non-opaque samples. It has been found that more than one layer of self fabric are usually required to provide consistent readings. A standard black backing is recommended. It is the responsibility of the operator to determine and follow a standard sample preparation which meets the stated conditions.

3.3.8.3 Representative samples are to be measured a minimum of four times, rotating the sample 90° after each measurement. All measurements are then to be averaged to produce a single set of reflectance values. The test results shall include the average spectral reflectance of each measured sample.

NOTE: Referee conditions:

- diffuse spectral 8°/hemispherical reflectance factors using a 150 mm diameter integrating sphere accessory coated with BaSO₄
- measurements made at 1 nm intervals over the entire required range with a fixed spectral bandpass of 5 nm up to 860 nm and a variable spectral bandpass of <20 nm from 860 nm to 2000 nm
- measurement geometry 8° incidence, hemispherical collection (8°/t), with the spectral component included
- referee sample measurement: the irradiated area to be 8 mm x 15 mm with a bandpass of 5 nm (preferred)
- where sample size or other condition dictates, irradiated area may be reduced to 4 mm x 9 mm with the bandpass also reduced to 2 nm
- where it is impractical to follow this preparation method, a single layer of the sample may be backed by NRC (National Research Council) standard black felt backing, Reference REN09870.DAT

conformément aux publications CIE 15-2004 et ASTM E308.2008 à l'aide de l'illuminant C et de l'observateur à 2° de la CIE, composante spéculaire incluse. Ces conditions de mesure doivent être respectées et incluses dans tous les rapports d'essai.

3.3.8.2 La préparation des échantillons pour toutes les mesures de couleur et de RIR doit être réalisée conformément à la procédure de mesure instrumentale n° 6 de l'American Association of Textile Chemists and Colorists (AATCC), A1.3, pour des échantillons non opaques. On a constaté que plusieurs épaisseurs de tissu extérieur sont habituellement requises pour donner une lecture uniforme. L'emploi d'un fond noir standard est recommandé. Il incombe à l'opérateur de déterminer et de suivre un protocole standard de préparation des échantillons qui répond aux conditions énoncées.

3.3.8.3 Des échantillons représentatifs doivent être mesurés au moins quatre fois, en tournant l'échantillon de 90° après chaque mesure. On doit ensuite calculer la moyenne de toutes les mesures pour produire un ensemble unique de valeurs de réflectance. Les résultats du test doivent comprendre la réflectance spectrale moyenne de chaque échantillon mesuré.

REMARQUE: Conditions de référence:

- Facteurs de réflectance spectrale 8° / hémisphérique diffuse utilisant une sphère intégrante de 150 mm de diamètre, enduite de BaSO₄
- Mesures effectuées à intervalles de 1 nm sur toute la plage requise avec une bande passante spectrale fixe de 5 nm à 860 nm et une bande passante spectrale variable < 20 nm entre 860 nm et 2 000 nm
- Géométrie de mesure avec incidence de 8° et collecte hémisphérique (8°/t), composante spectrale incluse
- Mesure des échantillons de référence: la zone irradiée doit être de 8 mm x 15 mm avec une bande passante de 5 nm (de préférence)
- Lorsque la taille des échantillons ou d'autres conditions l'exigent, la zone irradiée peut être réduite à 4 mm x 9 mm et la bande passante à 2 nm
- Quand il est impossible de suivre ce protocole de préparation, on peut placer une seule épaisseur de l'échantillon contre un fond en feutre noir standard du CNRC (Conseil national de recherches du Canada), référence REN09870.DAT

3.3.9 Colour. The CIE LAB 1976 co-ordinates for illuminant C, 2° observer are:

3.3.9 Couleur. Les coordonnées CIE LAB de 1976 pour l'illuminant C et un observateur à 2° sont:

	L*	a*	b*
Canadian Average Green / Vert canadien moyen	27.41	-6.78	16.46
Light Green / Vert pâle	42.90	-13.40	26.80
Brown / Brun	36.50	4.60	14.50
Black / Noir	18.71	0.41	1.21

3.3.9.1 Maximum tolerance is plus/minus 2 CIE LAB units for each coordinate (L*a*b* values, not deltas).

3.3.9.1 La tolérance maximale est de +/- 2 unités CIE LAB pour chaque coordonnée (valeurs L*a*b*, pas les valeurs delta).

3.3.9.1.1 These criteria are repeated in each of the applicable tables, I-IV, at the end of this document, with the CIE 1931/CIE LAB 1976 values also.

3.3.9.1.1 Ces critères sont repris dans chacun des tableaux applicables, I-IV, à la fin de ce document, ainsi qu'avec les valeurs CIE 1931/CIE LAB 1976.

3.3.9.2 Gloss. Unless otherwise specified by the applicable cloth specification, gloss values shall be less than 1.5 units at 20, 60, and 85 degrees when gloss is a specified requirement. Gloss is measured in accordance with ASTM D523.

3.3.9.2 Lustre. Sauf indication contraire dans la spécification applicable au tissu, les valeurs de lustre doivent être inférieures à 1,5 unité à 20°, 60° et 85° lorsque le lustre est une exigence prescrite. Le lustre est mesuré selon la norme ASTM D523.

3.3.10 Infra-red Reflection. Tables I, II, III, and IV contain the requirements for Infra-red reflection for each colour. Upper and lower tolerances are included in each Table. Figures I, II, III, and IV relate to the Tables and are a visual representation of the requirement with upper and lower tolerances shown.

3.3.10 Réflectance dans l'infrarouge. Les tableaux I, II, III et IV contiennent les exigences relatives à la réflectance dans l'infrarouge pour chaque couleur. Les tolérances supérieures et inférieures sont incluses dans chaque tableau. Les figures I, II, III et IV sont associées aux tableaux et sont une représentation visuelle des exigences, avec les tolérances supérieures et inférieures indiquées.

3.3.11 Requirement after Laundering.

3.3.11 Exigence après lavage.

3.3.11.1 Unless otherwise specified, the colour measurements specified herein shall remain within the original tolerances (+/- 2 CIELAB units) after 15 laundering cycles, when the laundering cycles are carried out in accordance with the methodology prescribed in the applicable textile specification.

3.3.11.1 Sauf indication contraire, les mesures de la couleur spécifiées dans les présentes doivent être à l'intérieur des tolérances d'origine (+/- 2 unités CIELAB) après 15 cycles de lavage, lorsque ces cycles sont réalisés conformément à la méthode prescrite dans les spécifications applicables des tissus.

3.3.11.2 Unless otherwise specified, the infra-red reflectance measurements specified herein shall remain within the original tolerances indicated in the Tables for each colour after 15 laundering

3.3.11.2 Sauf indication contraire, les mesures de la réflectance dans l'infrarouge prescrites aux présentes doivent respecter les tolérances d'origine indiquées aux tableaux pour chaque couleur après

cycles, when the laundering cycles are carried out in accordance with the methodology prescribed in the applicable textile specification.

3.4 Piece Marking. Unless otherwise specified, each piece shall have a label attached to the selvage at one end. The label shall be made of linen or heavy cardboard, with a reinforced eyelet for attaching a tying cord, and shall be legibly marked with the following information:

- a) Contractor's identification (name or CA number)
- b) Contract Number
- c) Gross length in metres, including allowance
- d) Net length in metres
- e) Piece number
- f) Number of lengths per piece
- g) Nomenclature/Classification (textile specification)
- h) Colour
- j) NATO Stock Number
- k) Date of manufacture

All of the above information is required when the goods are contracted for and being delivered directly to the Crown. When contracted by a third party with delivery not to the Crown, only (a), (e), (g), (h), (j), and (k) are mandatory. The other information must be readily available to the Crown and/or its contractor if required.

4. QUALITY CONTROL/INSPECTION

4.1 Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspections and tests as specified herein and to demonstrate that the materiel and services conform to the requirements specified in this Specification. Contractors may utilize their own or any other inspection facility acceptable to the Crown or its designated representative. Contractors may also utilize their own test facilities so long as Crown approval has been obtained in advance and the conditions stated in ISO quality and manufacturing publications are followed.

15 cycles de lavage, lorsque ces cycles sont réalisés conformément à la méthode prescrite dans la spécification applicable au tissu.

3.4 Marquage des pièces. Chaque pièce de tissu livrée au Canada doit porter, à une extrémité, une étiquette fixée à la lisière. L'étiquette doit être en toile de lin, en oléfine thermoliée ou en carton fort et percée d'un œillet renforcé permettant d'attacher une ficelle; elle doit porter les indications suivantes en caractères lisibles:

- a) Identification de l'entrepreneur (nom ou numéro de CA)
- b) Numéro du contrat
- c) Longueur brute en mètres, y compris la réserve
- d) Longueur nette en mètres
- e) Numéro du rouleau
- f) Nombre de longueurs par rouleau
- g) Nomenclature/classification (spécification relative au tissu)
- h) Couleur
- j) Numéro de nomenclature OTAN
- k) Date de fabrication

Tous les renseignements ci-dessus sont requis lorsque les marchandises sont obtenues dans le cadre d'un contrat et sont livrées directement au gouvernement. Lorsque les marchandises sont obtenues par contrat par une tierce partie sans être livrées au gouvernement, seuls les éléments a), e), g), h), j), et k) sont obligatoires. Les autres renseignements doivent être facilement accessibles pour le gouvernement ou son entrepreneur, le cas échéant.

4. CONTRÔLE DE LA QUALITÉ ET INSPECTION

4.1 Sauf indication contraire dans le contrat ou les documents d'achat, l'entrepreneur est tenu d'effectuer toutes les inspections et les essais prescrits ci-après afin de démontrer que les matériaux et les services sont conformes aux exigences énoncées dans la présente spécification. L'entrepreneur peut utiliser ses propres installations d'inspection ou avoir recours à toute autre installation jugée acceptable par le gouvernement ou son représentant désigné. L'entrepreneur peut également utiliser ses propres installations d'essai, pourvu qu'il ait obtenu à l'avance l'approbation du gouvernement et que les conditions décrites dans les publications de l'ISO sur la fabrication et la qualité

soient respectées.

4.2 The Crown reserves the right to perform any of the inspections or tests specified herein, where such are deemed necessary to ensure the materiel and/or services submitted to the Crown for acceptance meet all requirements of the contract. This applies equally to materiel contracted for delivery directly to the Department of National Defence or as component parts to a supplier with a contract for products for Defence use.

4.3 Any requirement for test data to be presented at pre-contract award or at pre-production will be stated in procurement documents. Unless otherwise specified, this data shall result from tests carried out on current production, at independent certified laboratories, in full accordance with all specified test methods and conditions, and these shall be included in the laboratory reports. Bidding and/or contractual documents shall include requirements for in-contract testing including: specific tests, their frequency, their source, and their reporting procedure. At a minimum, all shipments of CADPAT™ printed textile shall be accompanied by producer laboratory reports for colour and IRR measurements. These measurements shall have been carried out on the goods being shipped and shall have been carried out on each processed batch, and at least every 5,000 metres.

4.2 Le gouvernement se réserve le droit d'effectuer toute vérification ou tout essai jugé nécessaire pour s'assurer que le matériel et les services présentés au gouvernement pour acceptation sont conformes à toutes les exigences énoncées dans le contrat. Ceci s'applique également au matériel obtenu sous contrat qui doit être livré directement au ministère de la Défense nationale ou comme composants livrés à un fournisseur dans le cadre d'un contrat pour des produits à des fins militaires.

4.3 Toute exigence relative aux données d'essai qui doivent être présentées à l'étape de préadjudication ou de présérie sera indiquée dans les documents d'achat. Sauf indication contraire, ces données doivent être obtenues par des essais effectués pendant la production courante dans des laboratoires indépendants accrédités, conformément à toutes les méthodes et conditions d'essai prescrites, et elles doivent figurer dans les rapports de laboratoire. Les documents d'appel d'offres ou du contrat doivent inclure les exigences relatives aux essais pendant l'exécution du contrat, y compris: la définition des essais, leur fréquence, leur source et la production des rapports. Au minimum, tous les lots de tissu DCamC^{MC} imprimé doivent être accompagnés des rapports de laboratoire du producteur pour les mesures de couleur et de RIR. Ces mesures doivent avoir été réalisées sur les marchandises expédiées et effectuées sur chaque lot traité, et à tout le moins, à tous les 5 000 m.

5. PACKAGING

5.1 Unless otherwise specified, packaging, packing, and marking of shipping containers shall be in accordance with the terms of the contract.

5. CONDITIONNEMENT

5.1 Sauf indication contraire, le conditionnement, l'emballage et le marquage des conteneurs d'expédition doivent être conformes aux modalités du contrat.

6. NOTES

6.1 Ordering data. Procurement documents should specify the following:

- a) title, number and date of this Specification and of the textile specification
- b) NATO Stock number of required item
- c) Nomenclature/Classification (textile specification)

6. REMARQUES

6.1 Données de commande. Les documents d'achat doivent préciser:

- a) le titre, le numéro et la date de la présente spécification et de la spécification relative au tissu
- b) le numéro de nomenclature OTAN des articles requis

- d) Pre-production requirements
- e) Packaging, packing, and marking of shipping containers
- f) The Design Authority
- g) The Quality Assurance Authority

- c) la nomenclature ou la classification (spécification relative au tissu)
- d) les exigences de présérie
- e) le conditionnement, l'emballage et le marquage des conteneurs d'expédition
- f) l'autorité responsable de la conception
- g) l'autorité responsable de l'assurance de la qualité

6.2 Definition of terms.

6.2.1 Design Authority. The Design Authority is the Government agency responsible for the technical aspects of the design and for changes to the design. The Design Authority for this requirement is the Directorate of Soldier Systems Programme Management (DSSPM), Department of National Defence.

6.2.2 Quality Assurance Authority. The Quality Assurance Authority is the Government agency responsible for providing assurance the materiel and services supplied by the contractor are in accordance with the terms of the contract. The Quality Assurance Authority is the Directorate of Quality Assurance (DQA), Department of National Defence.

6.2.3 Master sealed pattern. A master sealed pattern is the authorized prototype of the item to be produced and is held only by the government.

6.2.4 Sealed pattern. The sealed pattern is a duplicate of the master sealed pattern which is the Department of National Defence's authorized prototype of the item to be produced. Sealed patterns are available for the contractor to use as a *conceptual example for production*. Contractors should note that sealed patterns may not incorporate all the details cited in this Specification and the order of precedence prevails (see para 2.4).

6.2.5 Specification Copies. Copies of this Specification are available from the Department of National Defence, Directorate of Soldier Systems Programme Management, Ottawa, Ontario, K1A 0K2, Attention: DSSPM 2-2.

6.3 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

6.2 Définition des termes.

6.2.1 Autorité responsable de la conception. L'autorité responsable de la conception est l'organisme gouvernemental chargé des aspects techniques de la conception et des modifications connexe. Dans le cas des articles visés par la présente spécification, il s'agit de la Direction - Administration du programme de l'équipement du soldat (DAPES).

6.2.2 Autorité responsable de l'assurance de la qualité. L'autorité responsable de l'assurance de la qualité est l'organisme gouvernemental chargé d'assurer que le matériel et les services fournis par l'entrepreneur satisfont aux modalités du contrat. L'autorité responsable de l'assurance de la qualité est le directeur de l'assurance de la qualité, ministère de la Défense nationale du Canada.

6.2.3 Modèle réglementaire principal. Prototype autorisé de l'article qui doit être fabriqué et dont le gouvernement est le seul détenteur.

6.2.4 Modèle réglementaire. Copie exacte du modèle réglementaire principal, qui est le prototype autorisé par le ministère de la Défense nationale pour l'article qui doit être fabriqué. Les modèles réglementaires sont mis à la disposition de l'entrepreneur comme *exemple conceptuel pour la production*. Les entrepreneurs doivent prendre note que les modèles réglementaires n'incorporent pas nécessairement tous les détails indiqués aux présentes, en cas de divergence, l'ordre de préséance mentionné au paragraphe 2.4 prévaut.

6.2.5 Copies de la spécification. Des copies de la présente spécification peuvent être obtenues auprès du ministère de la Défense nationale, Direction de l'administration du programme de l'équipement du soldat, Ottawa (Ontario), K1A 0K2, à l'attention: DAPES 2-2.

6.3 La fabrication ou l'évaluation d'un produit conformément à la présente spécification pourrait nécessiter l'utilisation de matériel ou d'équipement dangereux. La présente spécification n'a pas pour

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.

objet de traiter de toutes les préoccupations relatives à la santé, à la sécurité et à l'environnement liées à son utilisation. Il incombe à l'utilisateur de la spécification d'établir au préalable des méthodes appropriées qui tiennent compte des questions d'environnement, de santé et de sécurité, et de déterminer les restrictions réglementaires applicables.

TABLE I CADPAT™ REQUIREMENTS
CANADIAN AVERAGE GREEN

TABLEAU I EXIGENCES RELATIVES AU DCamC^{MC}
VERT CANADIEN MOYEN

SPECIFICATIONS / SPÉCIFICATIONS									
Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Écart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.	Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Écart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.
nm	%	%	%	%	nm	%	%	%	%
400	1.89	0.77	1.12	2.67	840	42.14	14.80	27.35	56.94
410	1.95	0.85	1.10	2.79	850	42.50	14.90	27.60	57.39
420	2.00	0.93	1.07	2.93	860	42.85	15.00	27.85	57.85
430	2.11	1.04	1.07	3.16	870	43.20	15.11	28.09	58.31
440	2.26	1.17	1.09	3.43	880	43.20	15.05	28.15	58.24
450	2.39	1.28	1.11	3.67	890	43.16	14.99	28.16	58.15
460	2.46	1.33	1.14	3.79	900	43.11	14.94	28.17	58.06
470	2.53	1.37	1.16	3.90	910	43.07	14.90	28.17	57.97
480	2.62	1.43	1.19	4.05	920	43.03	14.86	28.18	57.89
490	2.72	1.50	1.22	4.22	930	43.00	14.82	28.18	57.82
500	2.95	1.63	1.32	4.58	940	42.82	14.76	28.06	57.58
510	3.70	2.02	1.68	5.72	950	42.64	14.70	27.94	57.33
520	4.45	2.44	2.01	6.88	960	42.45	14.64	27.81	57.09
530	5.24	2.84	2.40	8.09	970	42.28	14.60	27.68	56.87
540	6.05	3.26	2.79	9.31	980	42.09	14.56	27.53	56.64
550	6.65	3.59	3.06	10.24	990	41.91	14.52	27.39	56.44
560	6.41	3.53	2.88	9.94	1000	42.56	14.65	27.91	57.20
570	6.17	3.49	2.68	9.65	1010	43.21	14.77	28.43	57.98
580	5.84	3.36	2.48	9.20	1020	43.85	14.90	28.95	58.76
590	5.47	3.22	2.26	8.69	1030	44.45	15.04	29.41	59.49
600	5.14	3.08	2.05	8.22	1040	45.15	15.18	29.97	60.33
610	4.86	2.97	1.89	7.84	1050	45.51	15.22	30.30	60.73
620	4.60	2.88	1.72	7.48	1060	45.59	15.15	30.43	60.74
630	4.39	2.78	1.61	7.16	1070	45.66	15.09	30.56	60.75
640	4.19	2.67	1.52	6.87	1080	45.73	15.04	30.69	60.76
650	3.96	2.54	1.42	6.50	1090	45.81	14.99	30.82	60.79
660	3.65	2.33	1.32	5.98	1100	45.88	14.94	30.94	60.81
670	3.34	2.13	1.21	5.47	1110	44.88	14.74	30.14	59.61
680	4.52	2.71	1.81	7.23	1120	43.87	14.55	29.32	58.42
690	5.87	3.42	2.45	9.30	1130	42.87	14.39	28.48	57.25
700	8.94	4.60	4.34	13.54	1140	41.87	14.24	27.63	56.10
710	14.61	6.69	7.92	21.30	1150	40.86	14.11	26.76	54.97
720	20.27	8.94	11.33	29.21	1160	39.87	14.00	25.87	53.88
730	26.37	10.48	15.89	36.86	1170	38.72	13.46	25.26	52.18
740	32.48	12.31	20.17	44.78	1180	37.49	13.01	24.49	50.50
750	35.95	13.20	22.75	49.15	1190	36.27	12.66	23.61	48.93
760	36.58	13.40	23.18	49.99	1200	35.04	12.43	22.61	47.47
770	37.52	13.62	23.91	51.14	1210	36.48	12.40	24.08	48.88
780	38.46	13.84	24.62	52.29	1220	36.68	12.37	24.31	49.05
790	39.40	14.06	25.34	53.46	1230	36.87	12.35	24.53	49.22
800	40.33	14.29	26.04	54.62	1240	37.07	12.33	24.75	49.40
810	41.28	14.53	26.75	55.81	1250	37.26	12.30	24.96	49.57
820	41.44	14.60	26.83	56.04	1260	37.46	12.28	25.18	49.75
830	41.79	14.70	27.09	56.49	1270	37.65	12.27	25.39	49.92

TABLE I CADPAT™ REQUIREMENTS
CANADIAN AVERAGE GREEN (cont.)

TABLEAU I EXIGENCES RELATIVES AU DCamC^{MC}
VERT CANADIEN MOYEN (suite)

Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Écart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.	Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Écart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.
nm	%	%	%	%	nm	%	%	%	%
1280	37,85	12,25	25,60	50,10	1720	17,30	7,49	9,81	24,79
1290	38,05	12,24	25,81	50,28	1730	17,11	7,45	9,66	24,56
1300	37,40	12,05	25,36	49,45	1740	16,92	7,42	9,50	24,34
1310	36,75	11,87	24,88	48,62	1750	16,72	7,34	9,38	24,07
1320	36,10	11,71	24,39	47,81	1760	16,52	7,26	9,26	23,79
1330	35,45	11,57	23,88	47,01	1770	16,33	7,18	9,14	23,51
1340	34,80	11,44	23,36	46,23	1780	16,12	7,11	9,02	23,23
1350	34,15	11,32	22,83	45,47	1790	15,92	7,03	8,89	22,96
1360	31,04	10,44	20,61	41,48	1800	15,72	6,96	8,76	22,68
1370	27,94	9,55	18,39	37,49	1810	14,93	6,63	8,30	21,55
1380	24,83	8,66	16,17	33,50	1820	14,13	6,29	7,85	20,42
1390	21,73	7,78	13,95	29,50	1830	13,34	5,95	7,39	19,29
1400	18,62	6,89	11,73	25,51	1840	12,55	5,62	6,93	18,16
1410	15,52	6,00	9,51	21,52	1850	11,75	5,28	6,47	17,03
1420	12,41	5,12	7,29	17,53	1860	10,96	4,94	6,01	15,90
1430	11,67	4,90	6,76	16,57	1870	10,16	4,61	5,56	14,77
1440	10,93	4,70	6,23	15,63	1880	9,37	4,27	5,10	13,64
1450	10,19	4,52	5,67	14,71	1890	8,57	3,94	4,64	12,51
1460	9,46	4,35	5,10	13,81	1900	7,78	3,60	4,18	11,38
1470	9,85	4,52	5,33	14,37	1910	6,99	3,26	3,72	10,25
1480	10,26	4,69	5,56	14,95	1920	6,19	2,93	3,26	9,12
1490	10,66	4,87	5,79	15,53	1930	5,65	2,58	3,07	8,23
1500	11,06	5,05	6,01	16,11	1940	5,32	2,41	2,91	7,73
1510	11,46	5,24	6,22	16,70	1950	4,99	2,28	2,71	7,26
1520	11,86	5,42	6,44	17,29	1960	4,67	2,19	2,48	6,86
1530	12,27	5,61	6,66	17,88	1970	4,33	2,16	2,18	6,49
1540	12,98	5,83	7,16	18,81	1980	4,48	2,21	2,27	6,69
1550	13,69	6,10	7,59	19,79	1990	4,63	2,27	2,36	6,90
1560	14,41	6,42	7,99	20,82	2000	4,79	2,33	2,46	7,12
1570	15,12	6,78	8,34	21,89					
1580	15,83	7,17	8,66	23,00					
1590	16,55	7,60	8,95	24,15					
1600	17,26	8,05	9,21	25,31					
1610	17,40	7,86	9,54	25,26					
1620	17,54	7,72	9,82	25,25					
1630	17,67	7,61	10,06	25,29					
1640	17,82	7,56	10,26	25,38					
1650	17,96	7,55	10,40	25,51					
1660	18,09	7,59	10,49	25,68					
1670	18,23	7,68	10,55	25,92					
1680	18,04	7,64	10,40	25,69					
1690	17,85	7,60	10,25	25,45					
1700	17,67	7,56	10,11	25,23					
1710	17,49	7,52	9,96	25,01					

FIGURE 1 CADPAT™ (TW)

COLOUR: CANADIAN AVERAGE GREEN

FIGURE 1 DCamC^{MC} (RBT)

COULEUR: VERT CANADIEN MOYEN

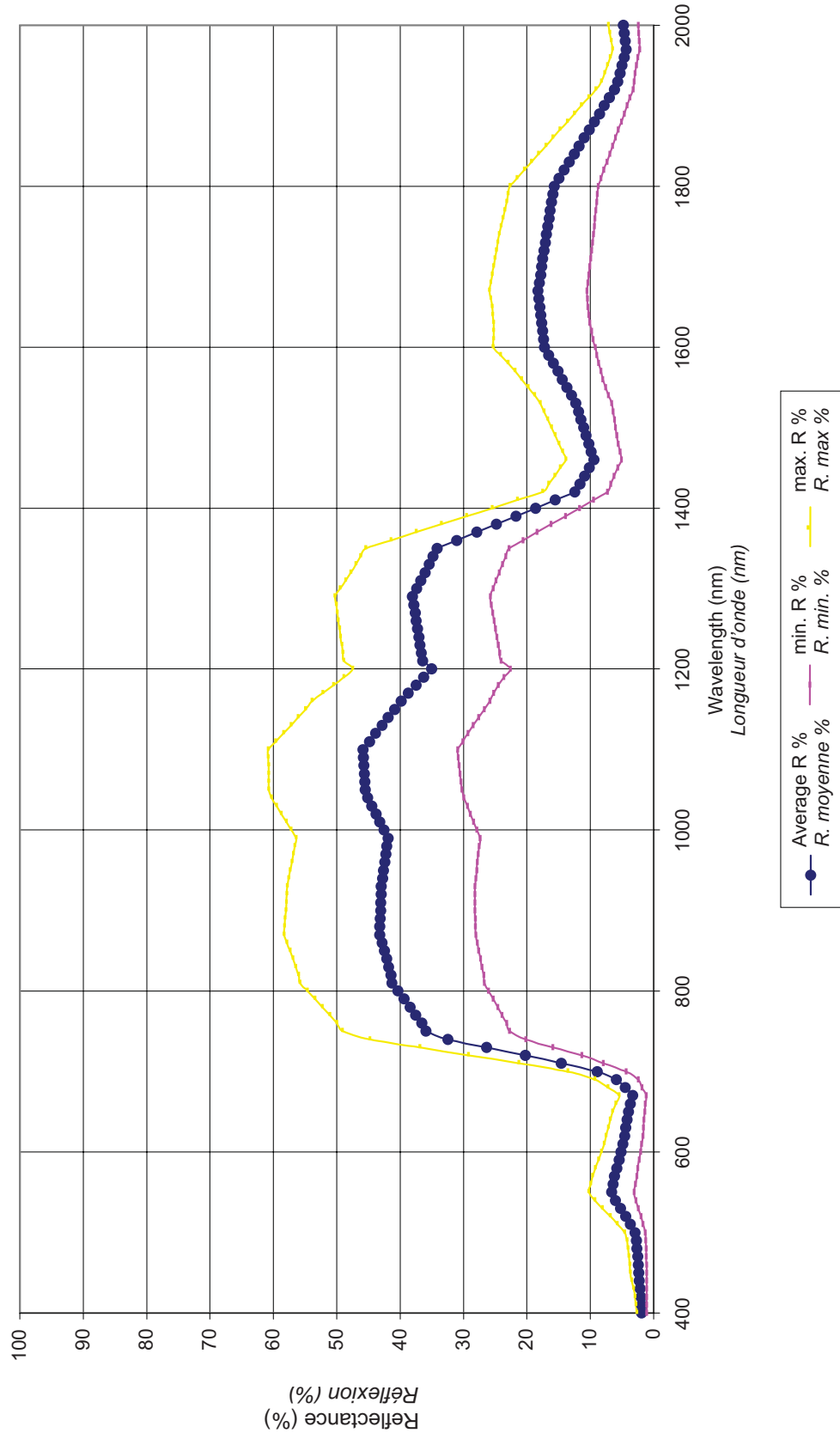


TABLE II CADPAT™ REQUIREMENTS
LIGHT GREEN

SPECIFICATIONS / SPÉCIFICATIONS:			
CIE 1931/CIE LAB 1976 ILLUMINANT C, 2 deg. specular component included <i>composante spéculaire incluse</i>	x	0,3614	
	y	-0,4339	
	Y%	13,10	
	DW.nm	566,70	
	S%	44,70	
	L*	42,90	
	a*	-13,40	
	b*	26,80	

TABLEAU II EXIGENCES RELATIVES AU DCamC^{MC}
VERT PÂLE

Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Ecart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.	Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Ecart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.
	%	%	%	%		%	%	%	%
400	4,37				840	52,68	18,50	34,18	71,18
410	4,30				850	53,12	18,62	34,50	71,74
420	4,24				860	53,37	18,75	34,81	72,32
430	4,18				870	54,00	18,89	35,12	72,89
440	4,12				880	54,00	18,81	35,19	72,80
450	4,13				890	53,95	18,74	35,21	72,69
460	4,47				900	53,89	18,68	35,21	72,57
470	4,82				910	53,84	18,62	35,22	72,46
480	6,82				920	53,79	18,57	35,22	72,36
490	9,53				930	53,75	18,53	35,22	72,27
500	12,22				940	53,63	18,45	35,08	71,97
510	14,86				950	53,30	18,37	34,93	71,67
520	17,51				960	53,06	18,30	34,76	71,36
530	17,24				970	52,84	18,25	34,60	71,09
540	15,74				980	52,61	18,20	34,41	70,80
550	14,23				990	52,39	18,16	34,24	70,55
560	12,69				1000	53,20	18,31	34,89	71,51
570	11,15				1010	54,01	18,47	35,54	72,47
580	10,50				1020	54,82	18,63	36,19	73,45
590	10,24				1030	55,56	18,80	36,76	74,36
600	10,34				1040	56,43	18,97	37,46	75,41
610	11,91				1050	56,89	19,02	37,87	75,91
620	13,49				1060	56,98	18,94	38,04	75,92
630	15,05				1070	57,07	18,87	38,20	75,94
640	16,61				1080	57,16	18,80	38,36	75,95
650	17,94				1090	57,26	18,73	38,52	75,99
660	18,70				1100	57,35	18,67	38,67	76,02
670	19,47				1110	56,10	18,42	37,68	74,52
680	18,68				1120	54,84	18,19	36,65	73,03
690	17,71				1130	53,59	17,98	35,61	71,57
700	17,46				1140	52,33	17,80	34,54	70,13
710	18,30				1150	51,08	17,64	33,45	68,72
720	19,14				1160	49,83	17,50	32,33	67,33
730	32,97	13,10	19,86	46,07	1170	48,40	16,83	31,57	65,23
740	40,59	15,38	25,21	55,98	1180	46,87	16,26	30,61	63,13
750	44,94	16,50	28,43	61,44	1190	45,33	15,83	29,51	61,16
760	45,73	16,76	28,98	62,49	1200	43,80	15,54	28,26	59,34
770	46,90	17,02	29,88	63,92	1210	45,60	15,50	30,10	61,10
780	48,07	17,29	30,78	65,36	1220	45,85	15,46	30,38	61,31
790	49,25	17,58	31,67	66,82	1230	46,09	15,43	30,66	61,52
800	50,41	17,87	32,55	68,28	1240	46,34	15,41	30,93	61,75
810	51,60	18,17	33,43	69,77	1250	46,58	15,38	31,20	61,96
820	51,80	18,25	33,54	70,05	1260	46,83	15,36	31,47	62,18
830	52,24	18,37	33,87	70,61	1270	47,07	15,33	31,74	62,40

TABLE II CADPAT™ REQUIREMENTS
LIGHT GREEN (cont.)

TABLEAU II EXIGENCES RELATIVES AU DCam^{MC}
VERT PÂLE (suite)

Wavelength Longueur d'onde nm	Reflection Réflexion %	ST.DEV. Écart type %	Refl. Min Réfl. min. %	Refl. Max Réfl. max. %	Wavelength Longueur d'onde nm	Reflection Réflexion %	ST.DEV. Écart type %	Refl. Min Réfl. min. %	Refl. Max Réfl. max. %
1280	47.32	15.32	32.00	62.63	1720	21.62	9.36	12.26	30.98
1290	47.56	15.30	32.26	62.86	1730	21.39	9.32	12.07	30.70
1300	46.76	15.06	31.70	61.82	1740	21.15	9.28	11.87	30.43
1310	45.94	14.84	31.10	60.78	1750	20.91	9.18	11.73	30.08
1320	45.12	14.64	30.48	59.76	1760	20.66	9.08	11.58	29.73
1330	44.31	14.46	29.85	58.77	1770	20.41	8.98	11.43	29.39
1340	43.50	14.30	29.20	57.79	1780	20.15	8.88	11.27	29.04
1350	42.69	14.16	28.53	56.84	1790	19.91	8.79	11.11	28.70
1360	38.80	13.05	25.76	51.85	1800	19.65	8.70	10.95	28.36
1370	34.92	11.94	22.98	46.86	1810	18.66	8.28	10.38	26.94
1380	31.04	10.83	20.21	41.87	1820	17.67	7.86	9.81	25.53
1390	27.16	9.72	17.44	36.88	1830	16.68	7.44	9.23	24.12
1400	23.28	8.61	14.66	31.89	1840	15.68	7.02	8.66	22.70
1410	19.39	7.51	11.89	26.90	1850	14.69	6.60	8.09	21.29
1420	15.51	6.40	9.11	21.91	1860	13.70	6.18	7.52	19.88
1430	14.58	6.13	8.45	20.71	1870	12.70	5.76	6.94	18.46
1440	13.66	5.88	7.79	19.54	1880	11.71	5.34	6.37	17.05
1450	12.74	5.65	7.09	18.38	1890	10.72	4.92	5.80	15.64
1460	11.82	5.44	6.38	17.26	1900	9.73	4.50	5.23	14.23
1470	12.32	5.65	6.67	17.97	1910	8.73	4.08	4.65	12.81
1480	12.82	5.87	6.95	18.69	1920	7.74	3.66	4.08	11.40
1490	13.33	6.09	7.24	19.42	1930	7.07	3.22	3.84	10.29
1500	13.82	6.32	7.51	20.14	1940	6.65	3.01	3.64	9.66
1510	14.33	6.55	7.78	20.87	1950	6.23	2.85	3.39	9.08
1520	14.83	6.78	8.05	21.61	1960	5.83	2.74	3.10	8.57
1530	15.34	7.01	8.32	22.35	1970	5.42	2.69	2.72	8.11
1540	16.23	7.28	8.95	23.51	1980	5.60	2.76	2.84	8.37
1550	17.11	7.62	9.49	24.73	1990	5.79	2.84	2.95	8.63
1560	18.01	8.02	9.99	26.03	2000	5.99	2.92	3.07	8.90
1570	18.90	8.47	10.42	27.37					
1580	19.79	8.97	10.82	28.75					
1590	20.68	9.50	11.18	30.19					
1600	21.58	10.07	11.51	31.64					
1610	21.75	9.83	11.92	31.58					
1620	21.92	9.65	12.28	31.57					
1630	22.09	9.52	12.58	31.61					
1640	22.27	9.45	12.82	31.72					
1650	22.44	9.44	13.00	31.89					
1660	22.61	9.49	13.12	32.10					
1670	22.79	9.61	13.18	32.39					
1680	22.56	9.55	13.00	32.11					
1690	22.32	9.5	12.82	31.81					
1700	22.09	9.45	12.64	31.54					
1710	21.86	9.40	12.45	31.26					

FIGURE 2 CADPAT™ (TW)

COLOUR: LIGHT GREEN

FIGURE 2 DCamC^{MC} (RBT)

COULEUR: VERT PÂLE

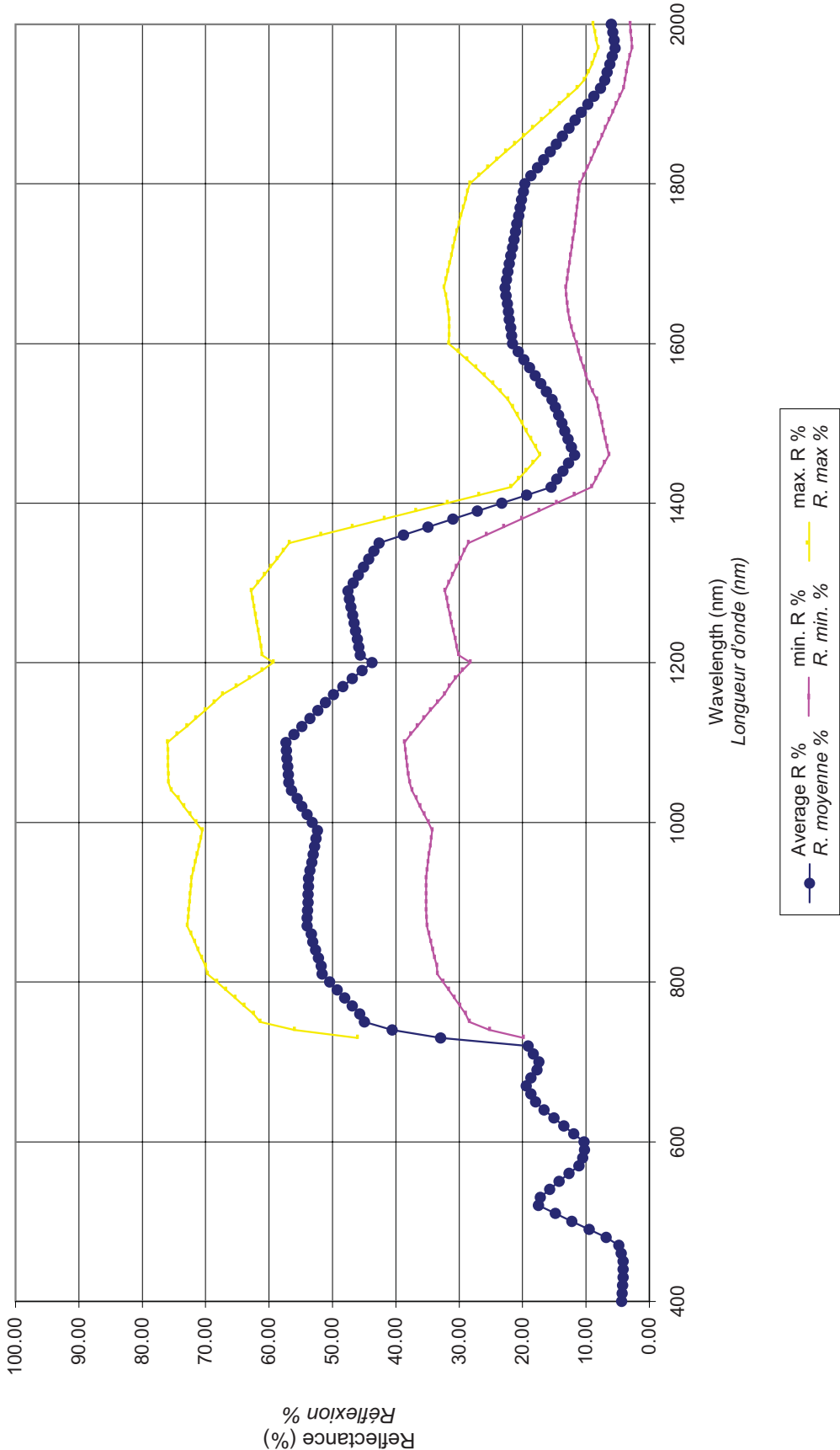


TABLE III CADPAT™ REQUIREMENTS
BROWN

TABLEAU III EXIGENCES RELATIVES AU DCamC^{MC}
BRUN

SPECIFICATIONS / SPÉCIFICATIONS:						
CIE 1931/CIE LAB 1936			x	0.3802		
ILLUMINANT C. 2 deg.			y	0.3649		
specular component included			DW, nm	583.00		
composante spéculaire incluse			S%	31.60		
			L*	36.50		
			a*	4.60		
			b*	14.50		
Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Écart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.	Wavelength Longueur d'onde	Reflection Réflexion
nm	%	%	%	%	nm	%
400	5.26				840	52.68
410	5.19				850	53.12
420	5.11				860	53.57
430	5.04				870	54.00
440	4.97				880	54.00
450	4.94				890	53.95
460	5.13				900	53.69
470	5.31				910	53.84
480	6.34				920	53.79
490	7.72				930	53.75
500	8.90				940	53.53
510	9.30				950	53.30
520	9.71				960	53.06
530	9.29				970	52.84
540	8.51				980	52.61
550	7.83				990	52.39
560	7.50				1000	53.20
570	7.16				1010	54.01
580	8.44				1020	54.82
590	10.40				1030	55.56
600	12.06				1040	56.43
610	12.51				1050	56.89
620	12.95				1060	56.98
630	14.20				1070	57.07
640	15.65				1080	57.16
650	16.89				1090	57.26
660	17.62				1100	57.35
670	18.36				1110	56.10
680	17.59				1120	54.84
690	16.65				1130	53.59
700	16.44				1140	52.33
710	17.29				1150	51.08
720	25.34	11.17	14.18	36.51	1160	49.83
730	32.97	13.10	19.86	46.07	1170	48.40
740	40.59	15.38	25.21	55.96	1180	46.87
750	44.94	16.50	28.43	61.44	1190	45.33
760	45.73	16.76	28.98	62.49	1200	43.80
770	46.90	17.02	29.88	63.92	1210	45.60
780	48.07	17.29	30.78	65.36	1220	45.85
790	49.25	17.58	31.67	66.82	1230	46.09
800	50.41	17.87	32.55	68.28	1240	46.34
810	51.60	18.17	33.43	69.77	1250	46.58
820	51.80	18.25	33.54	70.05	1260	46.83
830	52.24	18.37	33.87	70.61	1270	47.07

TABLE III CADPAT™ REQUIREMENTS
BROWN (cont.)

TABLEAU III EXIGENCES RELATIVES AU DCamC^{MC}
BRUN (suite)

Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Ecart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.	Wavelength Longueur d'onde	Reflection Réflexion	ST.DEV. Ecart type	Refl. Min Réfl. min.	Refl. Max Réfl. max.
nm.	%	%	%	%	nm.	%	%	%	%
1280	47.32	15.32	32.00	62.63	1720	21.62	9.36	12.26	30.98
1290	47.56	15.30	32.26	62.86	1730	21.39	9.32	12.07	30.70
1300	46.76	15.06	31.70	61.82	1740	21.15	9.28	11.87	30.43
1310	45.94	14.84	31.10	60.78	1750	20.91	9.18	11.73	30.08
1320	45.12	14.64	30.48	59.76	1760	20.66	9.08	11.58	29.73
1330	44.31	14.46	29.85	58.77	1770	20.41	8.98	11.43	29.39
1340	43.50	14.30	29.20	57.79	1780	20.15	8.88	11.27	29.04
1350	42.69	14.16	28.53	56.84	1790	19.91	8.79	11.11	28.70
1360	38.80	13.05	25.76	51.85	1800	19.65	8.70	10.95	28.36
1370	34.92	11.94	22.98	46.86	1810	18.66	8.28	10.38	26.94
1380	31.04	10.83	20.21	41.87	1820	17.67	7.86	9.81	25.53
1390	27.16	9.72	17.44	36.88	1830	16.68	7.44	9.23	24.12
1400	23.28	8.61	14.66	31.89	1840	15.68	7.02	8.66	22.70
1410	19.39	7.51	11.89	26.90	1850	14.69	6.60	8.09	21.29
1420	15.51	6.40	9.11	21.91	1860	13.70	6.18	7.52	19.88
1430	14.58	6.13	8.45	20.71	1870	12.70	5.76	6.94	18.46
1440	13.66	5.88	7.79	19.54	1880	11.71	5.34	6.37	17.05
1450	12.74	5.65	7.09	18.38	1890	10.72	4.92	5.80	15.64
1460	11.82	5.44	6.38	17.26	1900	9.73	4.50	5.23	14.23
1470	12.32	5.65	6.67	17.97	1910	8.73	4.08	4.65	12.81
1480	12.82	5.87	6.95	18.69	1920	7.74	3.66	4.08	11.40
1490	13.33	6.09	7.24	19.42	1930	7.07	3.22	3.84	10.29
1500	13.82	6.32	7.51	20.14	1940	6.65	3.01	3.64	9.66
1510	14.33	6.55	7.78	20.87	1950	6.23	2.85	3.39	9.08
1520	14.83	6.78	8.05	21.61	1960	5.83	2.74	3.10	8.57
1530	15.34	7.01	8.32	22.35	1970	5.42	2.69	2.72	8.11
1540	16.23	7.28	8.95	23.51	1980	5.00	2.76	2.84	8.37
1550	17.11	7.62	9.49	24.73	1990	5.79	2.84	2.95	8.63
1560	18.01	8.02	9.99	26.03	2000	5.99	2.92	3.07	8.90
1570	18.90	8.47	10.42	27.37					
1580	19.79	8.97	10.82	28.75					
1590	20.68	9.50	11.16	30.19					
1600	21.58	10.07	11.51	31.64					
1610	21.75	9.83	11.92	31.58					
1620	21.92	9.65	12.28	31.57					
1630	22.09	9.52	12.58	31.61					
1640	22.27	9.45	12.82	31.72					
1650	22.44	9.44	13.00	31.89					
1660	22.61	9.49	13.12	32.10					
1670	22.79	9.61	13.18	32.39					
1680	22.56	9.55	13.00	32.11					
1690	22.32	9.50	12.82	31.81					
1700	22.09	9.45	12.64	31.54					
1710	21.86	9.40	12.45	31.26					

FIGURE 3 CADPAT™ (TW)

COLOUR: BROWN

FIGURE 3 DCamC^{MC} (RBT)

COULEUR: BRUN

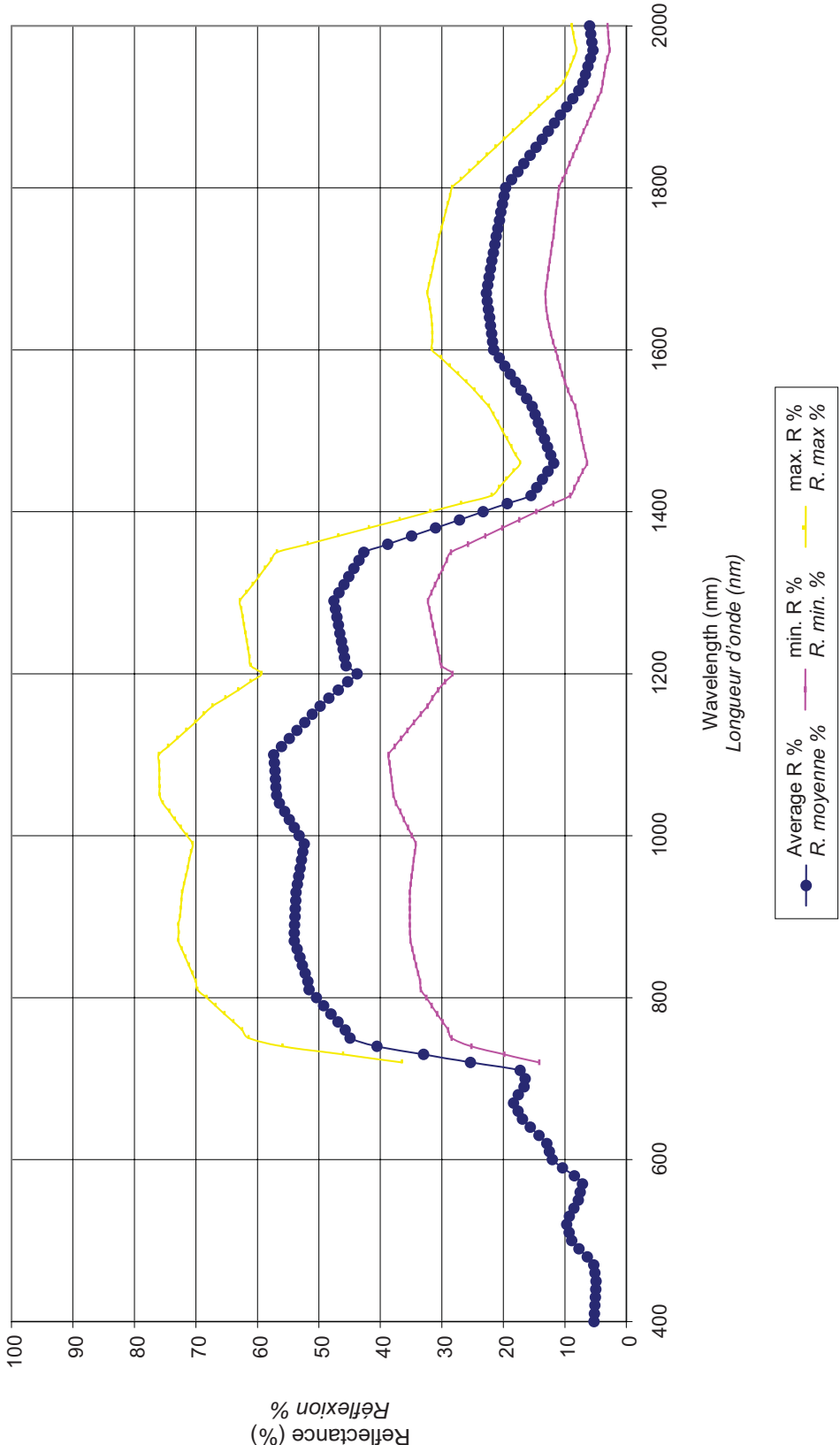


TABLE IV CADPAT™ REQUIREMENTS
BLACK

TABLEAU IV EXIGENCES RELATIVES AU DCamC^{MC}
NOIR

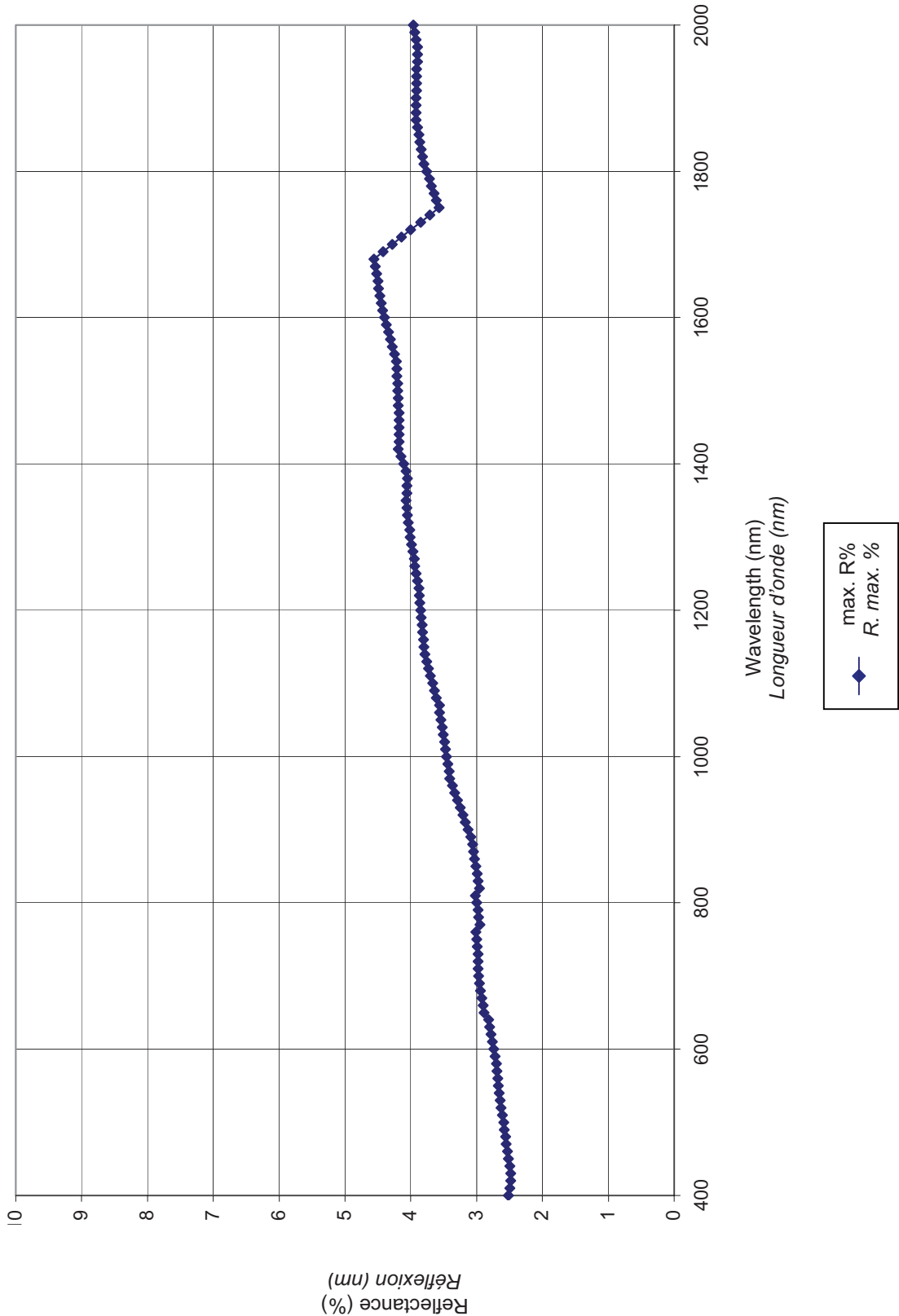
SPECIFICATIONS / SPÉCIFICATIONS:					
CIE 1931/CIE LAB 1971					
ILLUMINANT C, 2 deg.					
specular component included					
composante spéculaire incluse					
Wavelength (nm) Longueur d'onde (nm)	Reflection % Réflexion %	Wavelength (nm) Longueur d'onde (nm)	Reflection % Réflexion %	Wavelength (nm) Longueur d'onde (nm)	Reflection % Réflexion %
400	2,52	830	2,98	1260	3,94
410	2,50	840	2,99	1270	3,95
420	2,48	850	3,01	1280	3,97
430	2,48	860	3,03	1290	3,99
440	2,50	870	3,05	1300	4,01
450	2,52	880	3,06	1310	4,02
460	2,53	890	3,09	1320	4,04
470	2,55	900	3,13	1330	4,05
480	2,56	910	3,17	1340	4,06
490	2,58	920	3,21	1350	4,07
500	2,59	930	3,25	1360	4,06
510	2,61	940	3,29	1370	4,06
520	2,63	950	3,33	1380	4,05
530	2,64	960	3,37	1390	4,07
540	2,66	970	3,41	1400	4,11
550	2,67	980	3,42	1410	4,15
560	2,68	990	3,44	1420	4,19
570	2,69	1000	3,46	1430	4,18
580	2,70	1010	3,47	1440	4,18
590	2,72	1020	3,49	1450	4,18
600	2,74	1030	3,51	1460	4,18
610	2,76	1040	3,52	1470	4,18
620	2,78	1050	3,54	1480	4,19
630	2,80	1060	3,56	1490	4,19
640	2,82	1070	3,56	1500	4,20
650	2,89	1080	3,61	1510	4,20
660	2,90	1090	3,64	1520	4,21
670	2,92	1100	3,67	1530	4,21
680	2,94	1110	3,70	1540	4,22
690	2,96	1120	3,73	1550	4,25
700	2,97	1130	3,76	1560	4,28
710	2,98	1140	3,79	1570	4,31
720	2,98	1150	3,80	1580	4,34
730	2,98	1160	3,81	1590	4,37
740	2,99	1170	3,82	1600	4,40
750	3,00	1180	3,83	1610	4,43
760	3,01	1190	3,84	1620	4,45
770	2,95	1200	3,85	1630	4,47
780	2,97	1210	3,86	1640	4,49
790	2,98	1220	3,87	1650	4,50
800	3,00	1230	3,88	1660	4,52
810	3,02	1240	3,90	1670	4,54
820	2,96	1250	3,92	1680	4,56


FIGURE 4 CADPAT™ (TW)

COLOUR: BLACK

FIGURE 4 DCamC^{MC} (RBT)

COULEUR: NOIR



 <p>NOTICE</p> <p>This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document shall continue to apply.</p> <p>AVIS</p> <p>Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.</p>	Annex C To: W8486-163168
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EVALUATION OF HAT, SUN, TEMPERATE WEATHER, COMBAT (HSTW)

NSN 8415-21-914-5176 A/A

- 1 **General**
- 2 **Evaluation.** This annex describes how The Department of National Defence (DND) is to perform pre-award and pre-production evaluation of the Hat, Sun, Temperate Weather, Combat (HSTW) in terms of evaluating physical samples for the quality of workmanship and for their ability to demonstrate capability to meet requisite technologies, and for conformance to specified materials and measurements outlined in Annex B. The evaluations will be done through a technical verification performed by a team of DND Subject Matter Experts (SMEs)
- 3 **Testing, Test Methods, and Certificate of Compliance.**

OPI/BPR: DSSPM 2-13



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- 3.1 Unless otherwise specified, all testing and test methods must be in accordance with the specified requirements. An accredited independent laboratory familiar with textile, and/or head wear-related testing must conduct all testing unless otherwise stated. Testing carried out by university textile testing laboratories will also be acceptable. Should a non-accredited laboratory be required for specific tests, approval must be sought and received in writing from the Contracting Authority in advance.
- 3.2 The test interval is subject to change. It may be increased or decreased at the discretion of the Department of National Defence. DND may also request additional tests and samples at any time.
- 3.3 A Certificate of Compliance (C of C) is a written statement from the supplier guaranteeing the full compliance of the product to the specification, or portion thereof, referenced. This document must be on official company stationery, it must be current, it must make reference to the applicable specification, and it must have the original signature of the company's designated representative. DND reserves the right to verify the statements made in the C of C. Full test results, demonstrating the product's compliance, will be accepted in lieu of a C of C.
- 3.4 **Pre-Award Samples.** As part of the evaluation to confirm a Bidder's capability of meeting the technical and performance requirements, the pre-award sample of 1 (one) HSTW in size 7 must be submitted.
- 3.4.1 Hat and packaging must not have any markings that identify company name, including stamps, hang tags, or markings inside and outside of the hat. Non-compliance of this requirement can result in the bid being disqualified.
- 3.4.2 The Bidder must ensure that the required pre-award samples are manufactured in accordance with the technical and performance requirements outlined in the Annex B and are fully representative of the bid submitted.
- 3.5 **Pre-Production Samples.** As part of the evaluation to confirm a contractor's capability of meeting the technical and performance requirements, the pre-production sample of 1 (one) HSTW in size 7 1/2 must be submitted.
- 3.5.1 The Bidder must ensure that the required pre-award samples are manufactured in accordance with the technical and performance requirements outlined in the Annex B and are fully representative of the bid submitted.
- 3.6 **Material Substitutions.** All materials must be strictly in accordance with the technical and performance requirement. If all components for the pre-award sample cannot be obtained, bidder must provide a letter noting deviations with assurance that the pre-production sample will have the required components. Substitutions will not be accepted for pre-production samples.

3.7 Workmanship and Construction Evaluation. As part of the evaluation, to confirm a Bidder's submission for the quality of workmanship and for the ability to demonstrate capability to meet requisite technologies, the workmanship and construction will be evaluated using the criteria outlined in Table I.

3.7.1 Pre-Award Maximum Infractions. No Critical Infractions will be accepted in any pre-award samples. A maximum of three (3) Minor Infractions will be accepted in any pre-award samples. Observations will be noted and referenced in the pre-award evaluation.

3.7.2 Pre-Production Maximum Infractions. No critical or minor infractions will be accepted in pre-production samples. Observations will be noted and referenced in the pre-production evaluation.

3.7.3 Definitions.

Critical Infraction. A critical infraction is defined as a workmanship or construction issue evaluated to be non-compliant that directly affects serviceability of the hat or affects overall quality assurance.

Minor Infraction. A minor infraction is defined as a workmanship or construction issue evaluated to be non-compliant that may not affect serviceability of the hat but affects overall quality assurance.

Observation. An observation is defined as a workmanship or construction issue evaluated to be non-compliant that does not affect serviceability of the hat but affects overall quality assurance.

Table I – Workmanship and Construction Evaluation

Reference in Annex B	Criteria	Classification of Infraction		
		Critical Infraction	Minor Infraction	Observation
3.4 Materials				
Shell Material Para 3.4.2	The shell material does not conform to DSSPM 2-2-80-023. Test results have not been submitted.	X		
Print and Colour Para 3.4.3	The print colours and pattern must be as specified in DSSPM 2-2-80-500 for CADPAT™ TW, Annex B Appendix 3	X		
Chinstrap Para 3.4.6	The chinstrap cording is not Cord, Plaited, Spun Synthetic Fibre, Lightweight conforming to D-80-001-028/SF-001, Type I. The colour is not as identified in Table 1.		X	
Webbing Para 3.4.7	The webbing must be Textile, Spun Polyester, double Jacquard weave, 19 g/m ² (+/- 5%) in weight, the warp ends must be 192 with 19 picks/cm. The thickness must be 1.7mm (+/- 10%) and the width must be 9/16-inch (14.3 mm). The colour must be a good visual match to the shell material as specified in Table I. C of C not provided		X	
Screened Vents and Retention Washers Para 3.4.8	The screened vents and retention washers are not brass and must have a dull, black, chemical finish. The screened vent does not have an outside rim diameter of 9/16-inch (14.3 mm), and an outside screening diameter of 7/16-inch (11.1 mm).		X	

Toggle Para 3.7.9	The toggle is not a cylindrical, round tipped, plastic type with a non-metallic tension adjustment mechanism.		X	
Thread Para 3.4.10	Thread not as specified in Annex B. C of C must be provided.		X	
Hook and Loop Fastener Tape Para 3.4.11	The hook and loop fastener are not as specified in DSSPM 2- 2-80-153.		X	
Luminescent Material Para 3.4.12	The luminescent material are not as specified in Annex B. C of C not provided.		X	
3.5 Cutting				
Para 3.5.2	The shell parts of each hat are not cut in the direction of the warp as indicated on the pattern drawings.		X	
3.6 Sewing			X	
Para 3.6.2	Seams must be a minimum of 3/8-inch (9.5 mm) wide unless otherwise specified.		X	
Para 3.6.3	Stitching is not lockstitch Type 301 with a minimum of 9 and maximum of 11 stitches per inch (3.5 – 4.3 stitches/cm).		X	
Para 3.6.4	Bartacks are not 3/8-inch (9.5 mm) to 7/16-inch (11 mm) long with 22-24 stitches.		X	
Para 3.6.5	The tension of the needle and bobbin threads have not been adjusted to ensure correctly formed stitches.		X	

3.7 Construction					
Para 3.7.1	The hat brim must be constructed as per annex B			X	
Para 3.7.1.5	The webbing must be centred on the hatband. At each mark stitch through the webbing, the hatband and the sidewall with a straight stitch, 3 times. Do not allow the stitching to extend past the webbing			X	
Para 3.7.1.6	Phosphorescent Tab Loop Assemblies (Cat's-eye) are not constructed in accordance with Annex B and Appendix 1			X	
Para 3.7.2	Screened Vents Attachment. Screened vents not applied to each side of the hat. Care not taken to affix them in accordance with the manufacturer's instructions and leaving no raw edges exposed.			X	
3.7.3	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.			X	
3.7.3.1	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			X	
3.7.4	Sweatband.				
3.7.4.1	Sweatband is not constructed in accordance with Annex B.			X	

3.8 Scale of Measurements.	The finished hat must meet the dimensional requirements stated in the Scale of Measurements in Table I	X			

3.8 Quality Control Testing Requirements (Textiles) – Pre-award and Pre-production

- 3.8.1 Tests and test results will be required on each textile at the frequency stated on the chart below, before the material is delivered to the Crown or put into production, if contractor supplied textile. Test results shall also be submitted before the material is put into production when there is any change in the source of supply for the material(s). DND written approval is required prior to using any material from a new supplier.
- 3.8.2 All tests and test methods shall be in accordance with the specified requirements. All tests must be carried out on the same piece of goods. All testing shall be conducted by an accredited independent laboratory familiar with textile testing. Testing carried out by university textile testing laboratories will also be acceptable. Should a non-accredited laboratory be required for specific tests, approval shall be sought and received in writing from the Design Authority in advance.
- 3.8.3 Test requirements and the test interval are subject to change. They may be increased or decreased at the discretion of the Department of National Defense.
- 3.8.4 The CADPAT™ (AR) shall be manufactured in accordance with DSSPM 2-2-80-501. Colour and IRR “as received” will be evaluated and rated at PAS, PPS and during production. Colour and IRR “after 15 washes” will be recorded but not rated for pass/fail. It is the goal of the Department of National Defence to meet the camouflage and concealment requirements of DSSPM 2-2-80-501 in all factors
- 3.8.5 When a fabric sample is required, the sample and test results shall be from the same lot of fabric. The bidder shall provide assurance to the fact that all are from the same lot. DND may also request additional production samples at any time.
- 3.8.6 Although reporting of test results for all properties is not required, it is mandatory that all of the requirements be met in accordance with the applicable specification. The Crown reserves the right to carry out testing of any specified property in order to confirm the compliance of the fabric with the applicable specification in its entirety.
- 3.8.7 For option quantities, pre-production test requirements shall apply if a new batch/lot of fabric is to be used.
- 3.8.8 All of the in-production test results shall be submitted through the DND Quality Assurance Representative (DNDQAR).
- 3.8.9 The following quality control requirements shall be applied throughout the life of the contract at the stated frequency detailed below.

Table II: Quality Control Testing Requirements

Materials	Requirement	Pre-Award	Pre-Production	Production
<p>Cloth, Twist, Nylon/Cotton, Lightweight, 170 g/m2</p> <p>CADPAT™ (TW)</p>		<p>Test results for:</p> <ul style="list-style-type: none"> • Colourfastness to Light • Colour (as received) • IRR (as received) 	<p>Test results for:</p> <ul style="list-style-type: none"> • Colourfastness to Light • Dimensional Stability in Laundering (after 3 cycles) • Air Permeability • Colour (as received and after 15 launderings) • IRR (as received and after 15 launderings) 	<p>Test results for:</p> <ul style="list-style-type: none"> • Colourfastness to Light • Dimensional Stability in Laundering (after 3 cycles) • Air Permeability • Colour (as received and after 15 launderings) • IRR (as received and after 15 launderings)
	<p>DSSPM 2-2-80-023 Para 3.4.2</p>	<p>One (1) meter full width fabric sample</p>	<p>Two (2) meters full width fabric sample</p>	<p>Two (2) meters full width fabric sample</p>
	<p>DSSPM 2-2-80-500 Para 3.4.3</p>	<p>Exception: Bidders who have been awarded a Department of National Defence contract, within the past 18 months, for garments made from this fabric shall only be required to submit a C of C Note 1. This fabric must have been accompanied by complete test data and been accepted by the Technical Authority as fully compliant with the requirements of DSSPM 2-2-80-023.</p>		<p>Sample and test results shall be submitted for every 10,000 meters of production, or part thereof, or when the supplier changes.</p>

Cord, Plaited, Spun Synthetic Fibre	D-80-001-028/SF-001 Para 3.4.6	C of C	C of C	C of C when supplier change
Webbing, Textile, Spun Polyester, double jacquard weave CADPAT TM MAR	Apparel Trimming Style # CMW0214 Para 3.4.7	C of C	C of C	C of C when supplier change
Screened Vent and washer	Para 3.4.8	C of C	C of C	C of C when supplier change
Toggle Black	Para 3.4.9	C of C	C of C	C of C when supplier change
Thread	CAN/CGSB-4.139- 94 or CAN/CGSB- 4.131-93 Para 3.4.10	C of C	C of C	C of C when supplier change
Tape, Fastener, Nylon Hook and Loop	DSSPM 2-2-80-153 (17 June 2009)	C of C	C of C	C of C when supplier change
Luminescent Material	Para 3.4.12	C of C	C of C	C of C when supplier change

Note 1 Certificate of Compliance (C of C) is a written statement from the supplier guaranteeing the full compliance of the product to the specification, or portion thereof, referenced. This document must be on official company stationery, it must be current; it must make reference to the applicable specification and have the original signature of the company's designated representative. The Crown reserves the right to verify the statements made in the Certificate of Compliance. Full test results, demonstrating the product's compliance, will be accepted in lieu of a Certificate of Compliance