Director General CRPF
Block No. 1 CGO Complex, New Delhi-110003
(Govt. of India/Ministry of Home Affairs)
(Phone / Fax- 011-24360155)
(E-Mail- digprov@crpf.gov.in)

No.U.II-98(Spec)/2017-18-Prov-14-(Blanket) **Dated, the 21st March 2018**

To

The DsG: AR, BSF, CISF, ITBP, NSG, SSB and BPRD

Subject: **Revised QRs/Specification: "Blanket for CAPFs"**

This is with reference to CISF letter No. 13013(1)/QR/Blanket/2017/व्यवस्था/498 dated 08/01/2018 regarding proposal for revision of QRs/Specification of Blanket Air Force Blue that was approved vide MHA letter F.No. U-II-98(Spec)/2015-16-Prov-J/Shoes)-MHA-Prov-I-2806 dated 21/12/2017 and **to say that revised QRs/Specification is finalized by Sub-Group of CAPFs and further approved by Competent Authority.**

2. Henceforth, all the CAPFs may procure the above item required by them, strictly as per the laid down revised QRs/Specification.

3. This has the approval of DG, CRPF vide E-Office No. 142 dated 16/03/2018 (empowered vide MHA letter F.No. 11012/02/2009-Fin-I-17 dated 02/01/2018).

Encl: As above.

R.K. Thakur
DIG (Prov)

No.U.II-98(Spec)/2017-18-Prov-14-(Blanket) **Dated, the March 2018**

Copy forwarded to:-

1. The DS(Prov), MHA, Police Modernization Division, 26, Jaisalmer House, Mansingh Road, New Delhi-110011 for information please.
2. **DIG(IT), Dte Genl., CRPF** -with request to upload this QRs/Specification of **"Blanket for CAPFs"** to CRPF Portal and Selo Module.

R.K. Thakur
DIG (Prov)

Annexure-5

PART 4" OF TENDER ENQUIRY SPECIFICATION OF BLANKET AIR FORCE

GOVERNMENT OF INDIA
MINISTRY OF DEFENCE

SPECIFICATION

ON
BLANKET AIR FORCE BLUE

(DS CAT No. Temporary 7210-000 007)

Departmental Specification No.: AIR HQ/DQAS/AK-017

ISSUED BY

DIRECTORATE OF QUALITY ASSURANCE SERVICES (AERO)
AIR HEADQUARTERS, R K PURAM, WEST BLOCK NO – VI,
NEW DELHI – 110 066

RECORDS OF AMENDMENTS

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CISF 31/1/18

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0.0 FOREWORD

0.1 This Deptt Specification No. AIR HQ/DQAS/AK-017 has been prepared by Directorate of Quality Assurance Services (Aero) Air Headquarters, RK Puram, West Block – VI, New Delhi–110 066 to lay down the constructional details, method of testing performance and Quality Assurance (QA) requirement.

0.2 This specification shall be used for tender enquiry, Procurement, Manufacture and Quality Assurance of the items covered by this specification.

0.3 Quality Assurance Authority for this store is Directorate of Quality Assurance Services (Aero) Air Headquarters, RK Puram, West Block-VI, New Delhi-110 066 inquiries regarding this specification relating to technical or any other contractual conditions shall be referred to Quality Assurance Authority.

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0.4 These specifications are to be strictly complied with. Any act of non-compliance on dilution of specs by indenter or inspector will be liable for disciplinary action.

0.5 This specification has been prepared by Directorate of Quality Assurance (Aero) on the authority of the Chief of the Air Staff.

0.6 This specification is for use by the Indian Air Force.

0.7 This specification has been prepared on the basis of Market-friendly products available with reputed Indian manufacturers and exporters.

0.8 This specification would be used for manufacture, quality assurance and procurement of the item.

0.9 This specification holds good only for the supply order for which it is issued.

0.10 The Quality Assurance Authority reserves the right to amend or modify this specification as and when necessary.

0.11 The Quality Assurance Authority is the Competent Authority to grant concessions, if any, in respect of any clause contained in this specification.

0.12 Copies of any other reference documents such as Specification/Drawing/Instruction/Guides can be obtained from AHSP or from respective agencies.

1.0 SCOPE

1.1 This specification covers requirements of Blanket Air Force Blue against Defence requirements and provides guidance to contractors/suppliers, manufacturers, quality assurance agencies and stockists/ indentors etc.

1.2 This specification covers the requirements and method of tests for Blanket, Air Force Blue for issue to entitled Airmen and their families as per laid down scale.

2.0 RELATED SPECIFICATIONS AND DOCUMENTS

2.1 Reference is made in this specification to: -

SL No.	Specification No. & Years	Nomenclature
1.	IS 539:1974	Naphthalene (second revision) (Amendment 1) Reaffirmed 1993
2.	IS 744:1977	Method for determination of wool fibre diameter – projection microscope method (second revision)

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		Reaffirmed 1987
3.	IS 1390:1983	Methods for determination of pH value of aqueous extracts of textile materials (first revision) Reaffirmed 1993
4.	IS 1954:1990	Methods for determination of length and width of fabrics (second revision)
5.	IS 1963:1981	Methods of determination of threads per unit length in woven fabrics (second revision) Reaffirmed 1993
6.	IS 1964:1970	Methods for determination of weight per square meter and weight per linear meter of fabrics (first revisions) Reaffirmed 1988
7.	IS 1969:1985	Methods for determination of breaking load and elongation of woven textile fabrics (second revision) Reaffirmed 1993
8.	IS 2508:1984	Low density polyethylene films (second revision) (Amendment 1) Reaffirmed 1991
9.	IS 4905:1968	Methods for random sampling (Amendment 1) Reaffirmed 1999
10.	IS 5910:1977	Fineness grade of wool
11.	IS-4125	
12.	Specn No. IND/ GS/1683	Polypropylene strapping, 20 mm wide x 0.5 mm thick.
13.	Hot-rolled steel strips (baling), 13 mm wide x 0.4 mm thick	IS 1029 (medium grade)

2.2 Copies of the IS specification can be obtained on payment from: -

Bureau of Indian Standards,
9, Bahadur Shah Zafar Marg,
New Delhi-110 002

or their regional office/branch office.

2.3 DQAS (Aero) Specifications/Drawings can be obtained on payment from: -

Directorate of Quality Assurance Services (Aero) Air Headquarters,
RK Puram,
West Block-VI,
New Delhi – 110 066

2.4 Copies of IND/TC series of specifications and supplementary schedules are obtainable on payment from: -

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The Controller,
Controllerate of Quality Assurance (Textiles & Clothing),
Post Box No. 294,
Kanpur – 208 004

2.5 Copies of IND/GS and CIGS/US series of specification are obtainable on payment from: -

The Controller,
Controllerate of Quality Assurance (GS),
Post Box No.127,
Kanpur – 208 004

3.0 TERMINOLOGY, DEFINITIONS AND SYMBOLS

3.1 For the purpose of this standard the definitions and terminology given in the relevant Indian Standards should apply.

4.0 STANDARD PATTERN

4.1 The Standard Pattern of Blanket, Air Force Blue held in the custody of the Director Quality Assurance (Aero), Air Headquarters, West Block-VI, Rama Krishna Puram, New Delhi–110 066 shall constitute the standard as regards any particulars or properties not noted/defined in this specification.

5.0 MATERIAL

5.1 Where material, processes and finishes are specified in the connected individual specification, they are mandatory. The material, processes and finishes shall not be changed significantly without prior approval.

5.2 Test certificates of materials from recognised laboratories shall be obtained showing physical and chemical properties, if the manufacturer does not have his own testing laboratory.

5.3 The following materials shall be used for manufacture of the blankets: -

(a) Fibre Top

(i) Fineness grade of wool Top: - 64's conforming to IS 5910: 1977 subject to the condition that the maximum average diameter and minimum average length of the fibre are 22.59 micron and 50 mm respectively

(ii) Wool fibre (wool top) used shall be virgin (pure new).

(iii)

(iii) The basic blanket shall have a minimum of 80% wool content as per properties detailed above.

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(iv) A maximum of 20% polyamide fibre of 3-denier [illegible] and average length of 65 mm is permissible. No other type of fibre is permitted to be used.

(v) The fibre tops shall be preferably dyed to the required [illegible] shade prior to blending and subsequent production of yarn. In case piece dyeing is used, care is to be taken to ensure total consistency and uniformity of colour and shade in the end product.

(vi) Only AZO free dyestuff shall be used.

(b) **Piping:-** The blanket shall have continuous piping of 3.5 cm width on all four sides. The piping shall be of AF Blue colour made of 100% high quality polyester satin fabric. The piping shall be sewn to the edges of the blanket with 20 denier nylon (polyamide) yarn of matching colour.

(c) **Certification:-** The Blanket shall bear **"Woolmark Blend"** certification and logo as authorised by the IWS (International Wool Secretariat).

6.0 PROCESSING

6.1 Blanket Air Force Blue shall be manufactured to the shape and design as shown in the relevant drawings/ specifications.

6.2 The count of yarn, weave and type of finish of blankets shall be as follows: -

(a) Count of yarn, universal count (new metric count):

(i)	Warp	–	4.2 Nm (240 tex)
(ii)	Weft	–	4.2 Nm (240 tex)

(b) Weave – 2/2 twill

(c) Type of finish – Milled and Raised.

6.3 SPECIFICATION OF COLOUR

Standard Label	:	BLANKET AF BLUE
Colour		Air Force Blue
Composition		Wool - 80% Polyamide -20%

System	CIE LCH (L*C* h°)
Illuminant :	D 65
Standard Observer	10 Degree

Tristimulus Values :

X	Y	Z
16.573 (25.770)	18.503 (28.282)	26.831 (38.713)

L*C* h°

L	C	h^0
50.101 (60.143)	13.135 (11.870)	246.072 (248.812)

Tolerance CMC 1:c	1:2
ΔE	≤1.200

7.0 DIMENSIONS AND TOLERANCES

7.1 Dimensions shall conform to the shape, design and dimensions as given in the relevant drawings/ specification.

8.0 WORKMANSHIP AND FINISH

8.1 The general workmanship and finish shall be of a high standard and similar to sealed sample/standard pattern held by AHSP.

8.2 The blankets shall be properly washed and shall be free from grease, soap, filling or any other admixture which would give fictitious mass or firmness to the finished blankets and from loose surface fibres or specks of any kind.

8.3 In appearance, feel, general workmanship and finish and in all other respects not noted/defined in this specification the blankets shall conform to the corresponding sealed patterns held in the custody of Director Quality Assurance (Aero), Air Headquarters, West Block-VI, RK Puram, New Delhi-110 066.

9.0 PRE-INSPECTION BY PRODUCER (Not applicable for CRPF)

9.1 Advance Samples:- Manufacturers have to submit advance samples manufactured from approved materials for inspections, testing, trial/clearance by AHSP

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prior to commencement of bulk production. Number of samples required for material, dimensional check and test/proof shall be intimated in consultation with the AHSP.

9.2 Manufacturers/Contractors must satisfy themselves that the stores are in accordance with the terms of the contract and fully conform to the required specification, by carrying out a thorough pre-inspection of each lot before actually tendering the same for inspection to the Quality Assurance Officer nominated under the terms of the contract. A declaration by the contractor that a necessary pre-inspection has been carried out on the stores tendered will be submitted alongwith the challan. The declaration will also indicate the methods followed in carrying out pre-inspection showing the features checked/tested and will have the test certificate attached to the challan/declaration.

9.3 If the Quality Assurance Officer finds that the pre-inspection of the consignment as required above has not been carried out, the consignment is liable for rejection.

10.0 QUALITY ASSURANCE

10.1 On examination of the samples taken from any portion of the consignment or during surveillance inspection shall conform to the requirements when tested in accordance with the methods mentioned against each in the specification.

10.2 The accepted stores shall be immediately marked with facsimile of acceptance as suggested by AHSP.

10.3 The Blanket when visually examined both against light and on a surface shall not have more than one objectionable flaw per 8 m length. The objectionable flaws shall be those, which strike immediately the eyes of the person examining the blanket, and shall be deemed to include:

Missing ends and picks.
Floats
Cuts and Holes
Stains.
Weft bars and warp section marks
Big slubs, knots and specks.
Dyeing defects (streaks, patches etc)
Thick and thin places.

10.4 The details of these defects are given in IS: 4125.

10.5 Examination of sample taken from any portion of the consignment shall show that the blankets conform to the following requirements when tested in accordance with the methods mentioned against each: -

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Sl. No.	Characteristics	Requirements	Tolerances	Conforming
(i)	Composition of wool, percent	80	± 2	Appendix -A
(ii)	Composition of Polyamide, percent	20	± 2	
(iii)	Count of yarn, warp	4.2 NM (240 Tex)	± 5%	
(iv)	Count of yarn, weft	4.2 NM (240 Tex)	± 5%	
(v)	Twist per/dm	30	± 3	
(vi)	Breaking strength of single yarn, gms	550	Desirable	
(vii)	Ends per decimeter	120	Minimum	IS 1963
(viii)	Picks per decimeter	90	Minimum	IS 1963
(ix)	Mass per square meter	685 gms	± 5%	IS 1964
(x)	Mass per blanket under standard atmospheric conditions, kg	2.3	+ 0.2 − 0.1	
(xi)	Breaking load on 15 x 20 cm strips between grips, N; Min Warp Weft	 1100 900	 Minimum Minimum	 IS 1969 IS 1969
(xii)	Length of the Blanket, cm	230	− 2.0	IS 1954
(xiii)	Width of the blanket, cm	150	− 2.0	IS 1954
(xiv)	Average thickness of the finished blanket under standard conditions, mm	2.8	Desirable	IS: 7702
(xv)	Piling rating	3 or better		ISI0971 : 1984
(xvi)	Relaxation shrinkage, percent, Max	5	--	App 'B'
(xvii)	Loss in mass percent, Max	4	--	IS 2360
(xiii)	Fineness of wool: (a) Average wool fibre dia, microns (b) Average length of wool fibre, mm	64s 21.10-22.59 --		IS 5910:1977
(xiv)	Fineness of polyamide fibre, denier Average fibre length, mm	3 65		IS 10014 (Pt 2): 1981
(xv)	Weave	2/2 Twill		
(xvi)	Type of finish	Milled and raised		
(xvii)	Colour	Air Force Blue	$\Delta e \leq 1.2$	
(xviii)	Colour fastness to:- (a) Light (b) Washing	 4 or better 4 or better		IS 2454:1985 IS 3361:1979 (Test-2)

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1954/9

	(i) Staining on adjacent fabric (ii) Change in colour	4 or better 4 or better		IS:1390 Cold method
(xix)	pH value of aqueous extract	5.0-7.5		
(xx)	Polyester satin Piping (Ribbon) for the blanket Ends per dm Picks per dm Wt /linear mtr, gms Colour Weave Composition Stitches/dm Thread to be used Colour of thread Linear density of thread Type of thread	872 336 8.5 AF Blue Satin 100% Polyester 20 Coats (article No. 6230) Matching Colour 20 denier Filament yarn		

10.6 The quality assurance programme commences with the supplier receiving the supply order. The desired end result in terms of quality can only be achieved through regular mutual interaction between the QAS and the producer. Therefore, the QA programme must commence with an appraisal of the facilities available at the manufacturer's end. The QA Officer is therefore required to advise the manufacturer about ways and means of overcoming shortcomings, if any, in the existing manufacturing processes and quality procedures that are revealed during such appraisal. Once the manufacturer confirms that the shortcomings pointed out have been attended to, the QA officer is to direct the manufacturer in writing to submit a set of pilot samples to the QA Authority within the time specified in the supply order. This pilot Sample Clause may however be waived in case of repeat orders, or where the option of 25% additional quantity is exercised by the procurement agency, notwithstanding the fact that adhering to the suggested remedies in the manufacturing processes and quality procedures will still be mandatory on the part of the manufacturer.**(not applicable for CRPF)**

10.7 Pilot Sampling:- The Pilot samples submitted by the manufacturer will be thoroughly evaluated by the QA Authority who in turn will advise the manufacturer in respect of improvements to be made, on the end product. Such advice could cover aspects of aesthetics not explicitly covered in the specification but are implicit in quality workmanship as well as those of quantified quality parameters laid down in the specification. The Pilot sample could comprise important basic materials as well as the intended end-product, at the discretion of the QA Authority, details of which the manufacturer is to ascertain in consultation with the QA Authority well in advance. If considered necessary, the manufacturer may even be advised to submit fresh pilot samples. A maximum of three pilot samples are permitted to be submitted likewise. If the manufacturer is unable to produce a set of passable pilot samples even in the third attempt, the supply order is liable to be cancelled with necessary encashment/forfeiture of bank guarantee/security as per rules governing the contract. It is to be noted that getting the pilot sample cleared in all respect within the period stipulated in the supply order is the responsibility of the manufacturer, and therefore the manufacturer is advised to work out his own time schedule for the

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time with due consideration of a risk of failure in the first, second or even the third and final attempt. The usual time taken by the QA Authority for assessment of a set of samples is about four weeks. **(not applicable for CRPF)**

10.8 Pilot Sample Clearance:- On final clearance of the pilot sample, one set will be retained by the QA Authority for future comparison during currency of the supply order, and another one set, duly sealed, will be handed over to the manufacturer to aid his production as per agreed norms. **(not applicable for CRPF)**

10.9 Bulk Production Clearance:- Once a set of samples has been found satisfactory on all counts, the QA Authority will issue Bulk Production Clearance to the manufacturer, under intimation to the procurement agency. Thereafter the product has to conform to the approved sample in all respects notwithstanding any specific parameter(s) of this specification having been even exceeded in the pilot sample. **(not applicable for CRPF)**

11.0 SAMPLING PROCEDURE

11.1 Sampling of the stores shall be carried out by adopting as per sampling plan.

11.2 Sampling plan shall be as per table given below: -

Lot size in Nos.	Visual parameters	Physical lab parameters	Chemical lab parameters
Upto 50	50	3	3
51 to 100	15	3	3
101 to 150	25	3	3
151 to 300	30	4	3
301 to 500	35	5	3
501 to 1000	40	7	4
1001 to 3000	65	10	5
3001 to 10000	100	15	7

Note i) Sampling shall be done as per IS 4905

ii) The Quality Assurance Officer shall first draw samples for visual examination as per table above and Quality Assurance Requirement will be prepared by him. **(not applicable for CRPF)**

iii) If found satisfactory in visual examination, the Quality Assurance Officer shall draw the samples for lab tests as per above scale for physical parameters, or at any reduced scale as deemed fit.

iv) Samples for chemical tests and sub sample size will be a part of samples drawn for physical tests.

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v) The test parameters for sub sample size shall be for either certain minor or time-consuming lab tests.

11.3 The supplier shall offer the stores serially numbered and arranged in such a manner that it is easily accessible.

11.4 The maximum lot size shall be 10,000 nos.

12.0 CRITERIA FOR CONFORMITY

12.1 The lot shall be considered to be in conformity with the required standard if the sample drawn for lab test are found satisfactory and the lot is also found otherwise satisfactory in regard to visual parameters, as compared to the approved pilot sample. Non-conforming lots are liable for rejection in to the AQL as per IS: 2500-Pt I-1992.

12.2 The rejected stores shall be marked in such a way that the same cannot be re-offered/mixed with accepted stores.

13.0 TEST METHOD

13.1 Only approved test methods shall be used to ensure high degree of reproductivity and repeatability, standardised and published test methods by leading technical societies, trade associations and Govt. agencies may be referred.

13.2 Annexure 'A'

13.3 Annexure 'B'

14.0 MARKING

14.1 Each box containing the store shall also have proper label marked with manufacturer's name and address, month and year of manufacture, type, grade, contract No. and date etc.

14.2 Warning in the form of symbols be indicated in red e.g. glass, explosives etc.

14.3 Prior to being offered for inspection each blanket shall be affixed with woven Satin label of size 15 x 15 cm machine stitched all around with polyester thread of matching colour at one corner duly printed with the following particulars :-

Section/Ref No. & Nomenclature of the store.

Manufacturer's Name, initials or his recognised trademark.

Month & year of manufacture.

"Wool Blend" Logo

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14.4 Before despatch, each bulk package shall be legibly/indelibly marked by stencil showing the following details: -

(a) Nomenclature and DS Cat No of store.

(b) Quantity packed in the package.

(c) Batch No and date.

(d) Month and year of packing.

(e) Manufacturer's name, initials or recognised trademark.

(f) Gross mass of package in 'Kg'.

(g) Inspection note No and date.

(h) Contract No and date.

(j) Name and address of the consignee.

(k) Mothproofed naphthalene preserved.

15.0 PRESERVATION AND PACKING

15.1 The Blanket Air Force Blue should be packed to withstand transit hazards. Such as mechanical damage, effect of temperature, humidity including salty atmosphere, biological attack including Fungi and pests. In addition to above the packing shall be in accordance with the terms of contract.

15.2 The materials used for packing of Blanket, Air Force Blue shall conform to the following particulars: -

Ser No.	Materials	Conforming to
(a)	Naphthalene	IS 539
(b)	Jute, twine, 3 ply or polypropylene twine	IS 1912 / IS 12734
(c)	Laminated cloth hessian	Prov Specn No.IND/TC/2123
(d)	Polypropylene strapping, 12 mm wide x 0.5 mm thick (or) Hot-rolled steel strips (baling), 13 mm wide x 0.4 mm thick	IS 1029 (medium grade)
(e)	Polyethylene film, 0.04 mm thick	IS 2508
(f)	Cardboard Cartons	Best Commercial Quality

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(g)	Self sealing Poly-bags	Best Commercial Quality
(h)	Printed Adhesive Tape	Best Commercial Quality

15.3 QUALITY STICKERS

15.3.1 The manufacturer shall provide stickers of approximate size 50mmx25mm free of any additional charges, which are to be attached to each unit pack of blankets by the inspecting officer after duly affixing his identification stamp and signature. The QA Authority will provide samples of stickers to the manufacturer.

15.4 METHOD

15.4.1 The entire packing operation shall be carried out in presence of the inspecting officer.

15.4.2 The store shall be delivered/packed in new, dry and clean condition.

15.4.3 The blanket shall be free from dirt, dust and other foreign impurities before they are preserved.

15.4.4 The naphthalene shall be evenly distributed/dusted on the blanket and the quantity of naphthalene used for preservation shall not be less than 50 gm per blanket.

15.4.5 When the blankets have been rendered mothproof as above, they will be individually folded suitably and packed in unit packages with self sealing poly-bags which will be further sealed with the Quality Stickers mentioned above.

15.4.6 Sixteen unit packages of blankets shall be placed one over the other and then suitably tied with jute twine 3 ply or polypropylene twine. The bundle so formed shall be wrapped with a layer of polythene film and placed in a rectangular cardboard carton of suitable size. The Carton, thereafter will sealed with adhesive tapes and tape bound with polypropylene tapes. The rolls of adhesive tapes are to bear the manufacturer's identification markings duly printed on its entire length. The Carton shall further bear its gross weight as well as other suitable identification markings neatly printed/stenciled on it. Thereafter, the Carton shall be covered with an outer layer of laminated cloth hessian stitched all around with double twine 3 ply jute or polypropylene with not less than 6 stitches per 10 cm taking care not to pierce the card board carton itself. Various identification markings will thereafter be again stenciled on the exposed surface of the Hessian cloth. The bulk package, thus formed will be suitably tape bound with minimum two each longitudinal and transverse polypropylene straps and then sealed with IAF lead Seal. The inspecting officer himself shall carry out this final sealing.

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15.4.7 The seams on the Hessian cloth shall be tamper-proof with indelible ink/paint.

Note: i) The package shall be fully pressed and made compact as much as possible.

ii) In case of non-availability of specified/standard packing materials other alternative materials mentioned above may be used as substitutes only with prior permission of the Quality Assurance Authority.

15.5 MOTHPROOFING

15.5.1 The blankets shall be rendered mothproof by using Naphthalene balls conforming to IS 539 in suitable quantity (approximately 50 gms per blanket) or as previously approved by the Quality Assurance Officer.

16.0 TECHNICAL LITERATURE/DOCUMENT

16.1 For proper exploitation and maintenance of equipment relevant literature/documents shall be provided free of cost.

17.0 WARRANTY

17.1 The stores supplied against this specification shall be deemed to bear the warranty of the contractor against defective design, material, workmanship and performance for a period of 12 months from the date of receipt of stores at consignee's depot. If during this period, the stores supplied are found to be so defective the same shall be replaced immediately with the serviceable stores by the contractor at site free of any charges or cost or the contractor supplying such defective stores shall accept as suitable price penalty for the defective stores as may be decided by the purchasing officer on the recommendation of the Quality Assurance Authority.

18.0 DEFENCE STORES CATALOGUE NUMBER

18.1 The store covered by this specification shall bears the following DS Cat No,

Ser. No.	DS Cat No.	Nomenclature
1.	7210-000 007	Blanket Air Force Blue

19.0 SUGGESTIONS FOR IMPROVEMENT (Not applicable for CRPF)

19.1 This specification is a live document and subject to change/updating. Any suggestion for improvement of this document may be sent to: -

Directorate of Quality Assurance Services (Aero) Air Headquarters,
RK Puram,
West Block-VI,
New Delhi – 110 066.

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APPENDIX 'A'

METHOD FOR DETERMINATION OF COMPOSITION

A.1 The percentage of wool in the blanket shall be determined as per method given below: -

A.1.1 Take the specimen weighing approx 5 g and dissect the same into yarn and cut the yarn into pieces of approx 25mm length.

A.1.2 Dry the pieces of the test specimen at 105 to 110° C to constant mass and determine its oven dry mass:

A.1.3 Put all the pieces of the test specimen in a suitable conical flask/beaker. Add 5 percent sodium hydroxide solution to make a material to liquor ratio of 1:100. Boil the contents of the flask/beaker for 10 to 15 minutes.

A.1.4 Decant the liquid through a weighted cintered glass filter crucible with application of necessary suction of complete filtration and again with water until the water is neutral to litmus.

A.1.5 Dry the residue at 105 to 110° C to constant mass and determine its oven dry mass.

A.2 CALCULATIONS

A.2.1 Calculate the percentage by mass of wool (x) in the test specimen by the formula given below: -

$$\text{Percentage of wool fibre} = \frac{m-m_1}{m} \times 100$$

Where, m = Oven dry mass of the specimen.
m_1 = Oven dry mass of the residue.

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TABLE –1A Colour specification of Navy Blue colour Blanket

(Guideline of AATCC Test method 173 : 2009 & AATCC Evaluation Procedure 7 : 2009)

Colour	:	**NAVY BLUE**
System	:	**CIE LCH**
Illuminant Observer	:	**D 65**
Standard Observer	:	**10 Degree**

Tristimulus Values :

X	Y	Z
1.764	1.852	2.974

L C H :

L	C	H
14.691	7.602	271.671

CMC (l:c)	:	**2:1**
Colour difference, ΔE_{cmc}	:	**≤ 2.5**

Interpretation of Results :

i) If ΔE_{cmc} is less than or equal to 2.5, then sample is acceptable.

ii) If ΔE_{cmc} is greater than 2.5, then sample is unacceptable.

Note-1 : Absorbance/reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between samples of same type i.e., identical fabric construction parameters and filament/ fibre composition.

Note-2 : Test should be carried out after proper conditioning as per AATCC 173 using Diffuse (sphere) geometry spectrophotometer.

TABLE –1B Colour Specification of Piping of NAVY Blue Blanket

(Guideline of AATCC Test method 173 : 2009 & AATCC Evaluation Procedure 7 : 2009)

Colour	:	**PIPING**
System	:	**CIE LCH**
Illuminant Observer	:	**D 65**
Standard Observer	:	**10 Degree**

Tristimulus Values :

X	Y	Z
3.305	3.352	5.538

L C H :

L	C	H
21.402	10.189	282.126

CMC (l:c)	:	**2:1**
Colour difference, ΔE_{cmc}	:	**≤ 3.5**

Interpretation of Results :

i) If ΔE_{cmc} is less than or equal to 3.5, then sample is acceptable.

ii) If ΔE_{cmc} is greater than 3.5, then sample is unacceptable.

Note-1 : Absorbance/reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between samples of same type i.e., identical fabric construction parameters and filament/ fibre composition.

Note-2 : Test should be carried out after proper conditioning as per AATCC 173 using Diffuse (sphere) geometry spectrophotometer.

TABLE –2A Colour specification of Dark Blue colour Blanket

(Guideline of AATCC Test method 173 : 2009 & AATCC Evaluation Procedure 7 : 2009)

Colour	:	**DARK BLUE**
System	:	**CIE LCH**
Illuminant Observer	:	**D 65**
Standard Observer	:	**10 Degree**

Tristimulus Values :

X	Y	Z
1.352	1.388	1.826

L C H :

L	C	H
11.878	3.534	288.146

CMC (l:c)	:	**2:1**
Colour difference, ΔE_{cmc}	:	**≤ 2.5**

Interpretation of Results :

iii) If ΔE_{cmc} is less than or equal to 2.5, then sample is acceptable.

Iv) If ΔE_{cmc} is greater than 2.5, then sample is unacceptable.

Note-1 : Absorbance/reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between samples of same type i.e., identical fabric construction parameters and filament/ fibre composition.

Note-2 : Test should be carried out after proper conditioning as per AATCC 173 using Diffuse (sphere) geometry spectrophotometer.

TABLE –2B Colour Specification of Piping of Dark Blue Blanket

(Guideline of AATCC Test method 173 : 2009 & AATCC Evaluation Procedure 7 : 2009)

Colour	:	**PIPING**
System	:	**CIE LCH**
Illuminant Observer	:	**D 65**
Standard Observer	:	**10 Degree**

Tristimulus Values :

X	Y	Z
3.224	3.218	4.810

L C H :

L	C	H
20.897	7.988	291.830

CMC (l:c)	:	**2:1**
Colour difference, ΔE_{cmc}	:	**≤ 3.5**

Interpretation of Results :

iii) If ΔE_{cmc} is less than or equal to 3.5, then sample is acceptable.

iv) If ΔE_{cmc} is greater than 3.5, then sample is unacceptable.

Note-1 : Absorbance/reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between samples of same type i.e., identical fabric construction parameters and filament/ fibre composition.

Note-2 : Test should be carried out after proper conditioning as per AATCC 173 using Diffuse (sphere) geometry spectrophotometer.

TABLE –3A Colour specification Black colour Blanket

(Guideline of AATCC Test method 173 : 2009 & AATCC Evaluation Procedure 7 : 2009)

Colour	:	**BLACK**
System	:	**CIE LCH**
Illuminant Observer	:	**D 65**
Standard Observer	:	**10 Degree**

Tristimulus Values :

X	Y	Z
1.603	1.688	1.904

L C H :

L	C	H
13.757	0.855	275.538

CMC (l:c)	:	**2:1**
Colour difference, ΔE_{cmc}	:	**≤ 2.5**

Interpretation of Results :

v) If ΔE_{cmc} is less than or equal to 2.5, then sample is acceptable.

vi) If ΔE_{cmc} is greater than 2.5, then sample is unacceptable.

Note-1 : Absorbance/reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between samples of same type i.e., identical fabric construction parameters and filament/ fibre composition.

Note-2 : Test should be carried out after proper conditioning as per AATCC 173 using Diffuse (sphere) geometry spectrophotometer.

TABLE –3B Colour Specification of Piping of Black Blanket

(Guideline of AATCC Test method 173 : 2009 & AATCC Evaluation Procedure 7 : 2009)

Colour	:	**PIPING**
System	:	**CIE LCH**
Illuminant Observer	:	**D 65**
Standard Observer	:	**10 Degree**

Tristimulus Values :

X	Y	Z
3.884	4.006	4.152

L C H :

L	C	H
23.691	1.524	31.654

CMC (l:c)	:	**2:1**
Colour difference, ΔE_{cmc}	:	**≤ 3.6**

Interpretation of Results :

v) If ΔE_{cmc} is less than or equal to 3.5, then sample is acceptable.

vi) If ΔE_{cmc} is greater than 3.5, then sample is unacceptable.

Note-1 : Absorbance/reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between samples of same type i.e., identical fabric construction parameters and filament/ fibre composition.

Note-2 : Test should be carried out after proper conditioning as per AATCC 173 using Diffuse (sphere) geometry spectrophotometer.

TABLE-4: Thermal Resistance

S.No	Test parameter	Requirement	Test Method
4	Average Thermal Resistance, $K.m^2/W$, Minimum	0.10	ASTM D-1518 at 27°C)

Approved/~~Not Approved~~

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