

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)/2020-21-Prov(T-Shirt)-14

Dated, the 30 September 2020

To

The IG, CoBRA Sector HQR,
New Delhi.

Subject: QRs/Specification of "Full Sleeves CoBRA Pattern T-Shirt" (addendum to revised QRs/Specification of "T-Shirt Half Sleeves Round Neck Disruptive Pattern" approved vide DG, CRPF letter No. U-II-98(Spec)/2017-18-Prov(T-Shirt) dated 07/12/2018)

This is in continuation to revised QRs/Specification of "T-Shirt Half Sleeves Round Neck Disruptive Pattern" for CAPFs approved vide CRPF letter No. U-II-98(Spec)/2017-18-Prov-(T-Shirt) dated 07/12/2018 and to say that an addendum QRs/Specification of "Full Sleeves CoBRA Pattern T-Shirt" has been finalized by CAPFs Sub-Group and further approved by competent authority.

2. Henceforth, CoBRA Sector, CRPF may procure the above item strictly as per laid down addendum QRs/Specification of item read with revised QRs/Specification of "T-Shirt Half Sleeves Round Neck Disruptive Pattern" approved vide DG, CRPF letter No. U-II-98(Spec)/2017-18-Prov(T-Shirt) dated 07/12/2018.

3. This has the approval of DG, CRPF vide E-Office No. 6936 dated 02/09/2020 (empowered vide MHA letter F.No. 11012/02/2009-Fin-I-17 dated 02/01/2018).

Encl: As above.


(D.N. Laal)
DIG (Prov)

No.U.II-98(Spec)/2020-21-Prov(T-Shirt)-14

Dated, the September 2020

Copy forwarded to:-

1. The DS(Prov), MHA, Police Modernization Division, 26, Jaisalmer House, Mansingh Road, New Delhi-110011 for information please.
2. The DsG: AR, BSF, CISF, ITBP, NSG, SSB and BPRD for information.
3. DIG(IT), Dte Genl., CRPF-with request to upload this Addendum of revised QRs/Specification of "Full sleeves CoBRA Pattern T-Shirt" to CRPF Portal and Selo Module.


(D.N. Laal)
DIG (Prov)

Full Sleeves CoBRA Pattern T-Shirt

a. For Poly-Cotton T-Shirt

- i. **Material** : The material used in the manufacture of the full arm sleeve and cuff of T-shirt shall conform to the following specifications :

S/No.	Specifications	Requirement	Test method
1	Fibre identification / Composition For full arm sleeve	Cotton : 58±3% Polyester : Remainder	AATCC 20:2011 and AATCC 20A:2012
	For Cuff (On Dry mass basis)	Cotton : 56 ± 3% Polyester : Remainder Elastane : 2 % Min	IS: 667/AATC-20 AATCC-20-A/IS:3416

ii. **Manufacture and Workmanship/Operation :**

S/No.	Operation	Stitch Code	Needle Size	Thread Size	Machine Used
1.	Cuff Rib Joining	514	11-Ball Point	80/120	Four thread overlock machine
2.	Top Stitch on Cuff Rib	406	11-Ball Point	80/120	Two needles flat lock machines with needle gauge 4mm

- iii. **CUFF RIB**: The cuffs of the T-shirt should have 1x1 rib.

b. For 100 % Cotton T-Shirt

- i. **Material** : The material used in the manufacture of the full arm sleeve and cuff of T-shirt shall conform to the following specifications :

S/No.	Specifications	Requirement	Test method
1	Fibre identification / Composition For full arm sleeve	Cotton : 100 %	AATCC 20:2011 and AATCC 20A:2012
	For Cuff (On Dry mass basis)	Cotton : 97 ± Max Elastane : Remainder (%)	IS: 667/AATC-20 AATCC-20-A/IS:3416

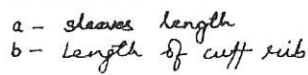
ii. **Manufacture and Workmanship/Operation :**

S/No.	Operation	Stitch Code	Needle Size	Thread Size	Machine Used
1.	Cuff Rib Joining	514	11-Ball Point	80/120	Four thread overlock machine
2.	Top Stitch on Cuff Rib	406	11-Ball Point	80/120	Tow needles flat lock machines with needle gauge 4mm

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- | Size specification of T-shirt (full sleeves round neck) | | | | | | | |
|---|--------------------|-----------------|----|------|----|-----|-----------|
| Sl. No. | Size | Sizes in inches | | | | | Tolerance |
| | | S | M | L | XL | XXL | |
| a | Sleeve length | 23.5 | 24 | 24.5 | 25 | 26 | ±0.25 |
| b | Length of cuff rib | 2 | 2 | 2 | 2 | 2 | - |

5. The diagram shown below can be used for reference:



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COBRA

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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-(T-Shirt)

Dated, the 7 December 2018

To

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

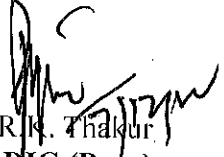
Subject: Revised QRs/Specification of "T-Shirt Half Sleeves Round Neck Disruptive Pattern" for CAPFs.

This is with reference to BSF letter No. 401/Prov-CTS(NC)/BSF/SPN/T-Shirt Round Neck/2013/1519-23 dated 28/08/2015 regarding proposal for revision of QRs/Specification of "T-Shirt Half Sleeves Round Neck Disruptive Pattern" that was approved vide MHA letter U-II-98(Spec)2013-14-Prov-1166 dated 26/11/2013 and to say that revised QRs/Specification has been 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. The earlier QRs/Specification of T-Shirt Round Neck Disruptive Pattern approved vide MHA letter No. U-II-98(Spec)/2013-14-Prov-2013-14-Prov-1166 dated 26/11/2013 is rescinded.

3. This has the approval of DG, CRPF vide E-Office No. 144 dated 07/12/2018 (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-(T-Shirt)-14

Dated, the December 2018

Copy forwarded to:-

1. **SO (IT)**, North Block-with request to upload the approved QRs/Specification of "T-Shirt Half Sleeves Round Neck Disruptive Pattern" to MHA Website. For information and necessary action please on his e-mail ID soit@nic.in
2. **DIG(IT)**, Dte Genl., CRPF -with request to upload this approved QRs/Specification of "T-Shirt Half Sleeves Round Neck Disruptive Pattern" for CAPFs to CRPF Portal and Selo Module.


R.K. Thakur
DIG (Prov)

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QRs/ Specifications of "T-Shirt Half Sleeves Round Neck Disruptive Pattern"

1. **Applicability-** These specifications relate to the manufacturing details of the T-Shirt Half Sleeves Round Neck Disruptive Pattern (Regular & Green Pattern)

2. **Salient Features:**

The salient features of the garment are: Poly-Cotton T-Shirt

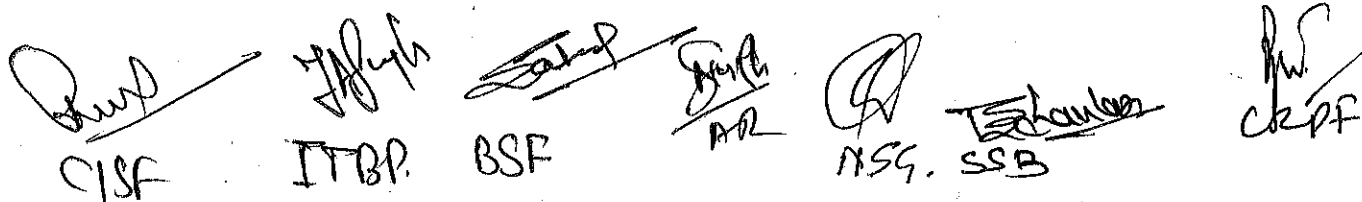
3. **Materials**

The materials used in the manufacture and packing of the T-Shirt shall conform to the following Standard Specifications:

The T-Shirt shall be manufactured out of well and evenly single jersey knitted fabric. The constructional details of the fabric are as given under. The knitted fabric shall not be overloaded or pulled in length while calendaring.

S. No.	Specifications	Requirement	Test Method*
1.	Fibre Identification/ Composition Except Neck For Neck (On Dry mass basis)	Cotton : $58 \pm 3\%$ Polyester : Remainder Cotton : $56 \pm 3\%$ Polyester : Remainder Elastane : 2% Min	AATCC 20:2011 and AATCC 20A:2012 IS: 667/AATC-20 AATCC-20-A/IS:3416
2.	Dimensional Stability	$\pm 3.5\%$ (Both directions), Maximum	IS 2977-1989
3.	Fabric Weight	200 ¹ to 220 (g/m ²)	IS 1964 : 2001
4.	Colour Fastness to Rubbing	Dry: 3-4 or better Wet: 3-4 or better	IS 766-1988
5.	Colour Fastness to Light	4-5 or better (On blue wool)	IS 2454: 1985
6.	Colour Fastness to Washing	Change in Colour: 4 or better Staining on Cotton: 4 or better	IS/ISO 105 C 10 D (4): 2006
7.	Colour Fastness to Perspiration	4 or better	IS 971:1983
8.	Spirality after one Wash	4% Maximum	IS/ISO 16322-1: 2005 (Washing as per ISO 6330-5A at 40°C followed by flat dry)
9.	Banned Azo Colorants	30 mg per Kg, Maximum	IS 15570 : 2005
10.	pH Value of aqueous extract (Cold method)	6.0 to 8.5	IS 1390 : 1983
11.	Count per yarn, Ne	24's (for manufacturer's guidance)	IS:3442-1980
12.	Wales per Inch Course per Inch	32 Minimum 48 Minimum	Visual
13.	Type of Knit	Single Jersey (Plain Knit)	Visual

* Latest version of testing Method will be used.



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4. **Design** : The T-Shirt shall be round neck disruptive pattern (Regular & Green Pattern)

Portion to be stitched	Type of stitch	Thread in the Needles	Thread in the loopers
Round Neck – (Crew Neck) T-Shirt and armholes	Overlock & Flat Lock Stitches	80/120	80/120
Note: Ticket No. 80/120 Spun Polyester are used in the needles and loopers.			

5. **Manufacture and Workmanship/ Operation:**

S.No.	Operation	Stitch Code	Needle Size	Thread Size	Machine Used
1.	Front & Back Shoulder Joining	514	11-Ball Point	80/120	Four Thread Overlock Machines
2.	Sleeve Joining	514	11-Ball Point	80/120	Four Thread Overlock Machines
3.	Side Seam Joining	514	11-Ball Point	80/120	Four Thread Overlock Machines
4.	Neck Rib Joining	514	11-Ball Point	80/120	Four Thread Overlock Machines
5.	Top Stitch on Neck Rib	406	11-Ball Point	80/120	Two Needles Flat Lock Machines with needle gauge 4mm
6.	Sleeve & Bottom Hemming	406	11-Ball Point	80/120	Two Needles Flat Lock Machines with needle gauge 8mm

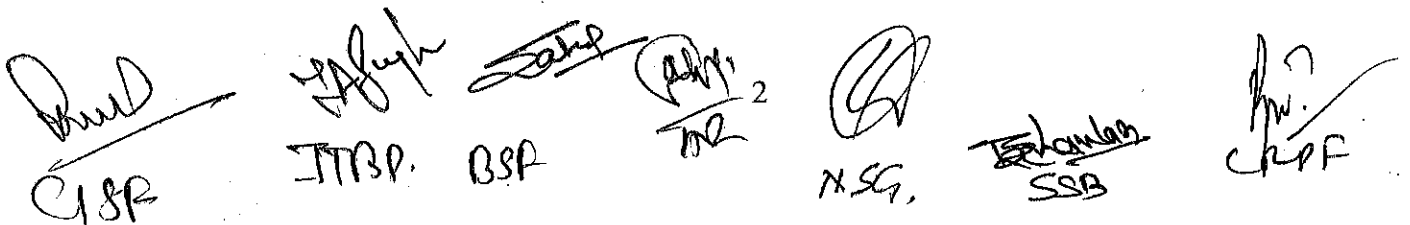
Note: The number of stitches shall not be less than 12 stitches per inches.

6. **Shape and dimensions**

The T-Shirt shall confirm to the requirement given in (Annexure-A)

7. **Packaging**

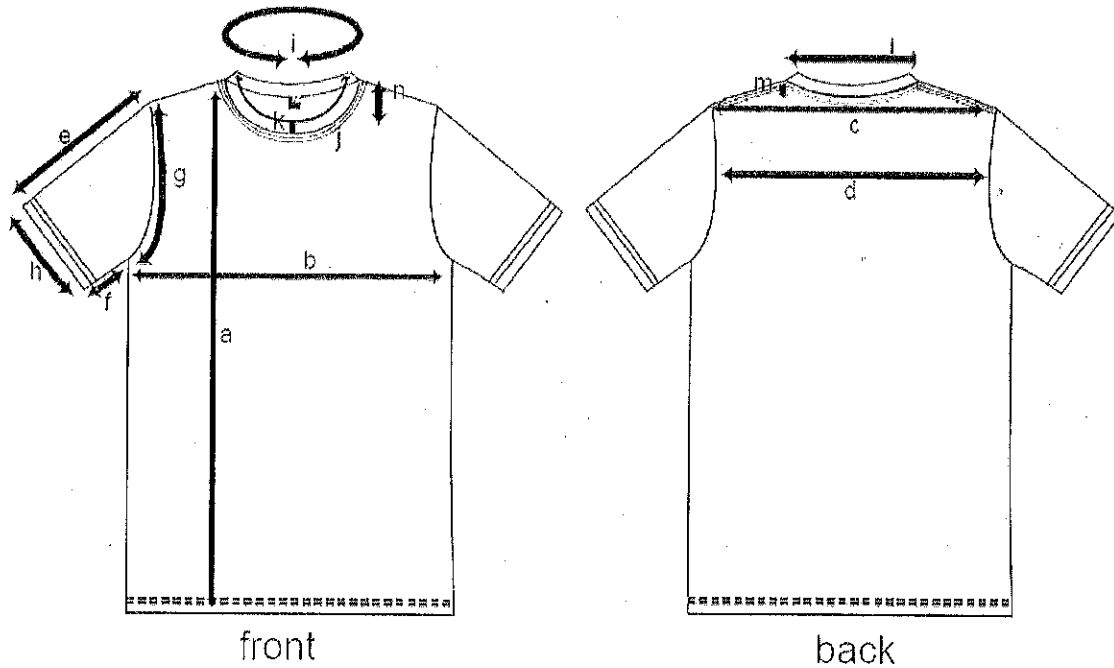
S.No.	Materials	Dimension
1.	Re-Cycle Card-Board 300 gsm	26 cm x 22 cm
2.	Transparent Polybag (Printed on bag: Kindly dispose after used)	35 cm x 27 cm
3.	Plastic Packing Clip (U Shape)	4.0 cm x .7 cm x .3 cm
4.	Paper Strip/ Fabric Ribbon strip	If required
5.	Wash Care Label, Stamp-Ink on Center Back Neck	Standard Size 3 cm x 4 cm



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Annexure-A

MENS T-SHIRT



Size Specification of T-Shirt (half sleeves round neck)							
Sl. No.	Size	Size in inches					Tolerance
		S	M	L	XL	XXL	
a	length from (HSP)	28.5	29	29.5	30	31	±0.5
b	chest width round	40	42	44	46	48	±1.0
c	shoulder seam to seam	17.5	18	18.5	19	19.5	±0.25
d	across back 4" down from center back	16.5	17	17.5	18	18.5	±0.25
e	sleeve length	8.5	9	9.5	10	10.5	±0.25
f	inseam length	4	4.5	5	5.5	6	±0.25
g	arm hole curve round	19	20	21	22	23	±0.25
h	sleeve opening (round)	14	14	14.5	15	15.5	±0.25
i	neck rib round	17.5	18	18.5	19	19.5	±0.25
j	neck round on seam	23	23.5	24	24.5	25	±0.25
k	neck rib height	1	1	1	1	1	-
l	neck width shoulder seam to shoulder seam	7.75	8	8.25	8.5	8.75	±0.15
m	back neck drop	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	-
n	front neck drop	3	3	3	3	3	±0.15

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QRs/ Specifications of "T-Shirt Half Sleeves Round Neck Disruptive Pattern"

1. **Applicability**- These specifications relate to the manufacturing details of the T-Shirt Half Sleeves Round Neck Disruptive Pattern (Regular & Green Pattern)
2. **Salient Features:**

The salient features of the garment are: **100% Cotton T-Shirt**

3. **Materials**

The materials used in the manufacture and packing of the T-Shirt shall conform to the following Standard Specifications:

The T-Shirt shall be manufactured out of well and evenly single jersey knitted fabric. The constructional details of the fabric are as given under. The knitted fabric shall not be overloaded or pulled in length while calendaring.

S. No.	Specifications	Requirement	Test Method*
1.	Fibre Identification/ Composition Except Neck For Neck (On Dry mass basis)	Cotton : 100% Cotton : 97 % Max Elastane : Remainder (%)	AATCC 20:2011 and AATCC 20A:2012 IS: 667/AATC-20 AATCC-20-A/IS:3416
2.	Dimensional Stability	±3.5% (Both directions)	IS 2977-1989
3.	Fabric Weight	200 to 220 (g/m ²)	IS 1964 : 2001
4.	Colour Fastness to Rubbing	Dry: 3-4 or better Wet: 3-4 or better	IS 766-1988
5.	Colour Fastness to Light	4-5 or better	IS 2454: 1985
6.	Colour Fastness to Washing	Change in Colour: 4 or better Staining on Cotton: 4 or better	IS/ISO 105 C 10 D (4): 2006
7.	Colour Fastness to Perspiration	4 or better	IS 971:1983
8.	Spirality after one Wash	±4% Maximum	IS/ISO 16322-1: 2005 (Washing as per ISO 6330-2A at 60°C followed by flat dry)
9.	Banned Azo Colorants	30 mg per Kg, Maximum	IS 15570 : 2005
10.	pH Value of aqueous extract (Cold method)	6.0 to 8.5	IS 1390 : 1983
11.	Count per yarn, Ne	24's (for manufacturer's guidance)	IS:3442-1980
12.	Wales per Inch, Course per Inch,	32 Minimum 48 Minimum	Visual
13.	Type of Knit	Single Jersey (Plain Knit)	Visual

* Latest version of testing Method will be used.

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4. **Design** : The T-Shirt shall be round neck disruptive pattern (Regular & Green Pattern)

Portion to be stitched	Type of stitch	Thread in the Needles	Thread in the loopers
Round Neck – (Crew Neck) T-Shirt and armholes	Overlock & Flat Lock Stitches	80/120	80/120
Note: Ticket No. 80/120 Spun Polyester are used in the needles and loopers.			

5. **Manufacture and Workmanship/ Operation:**

S.No.	Operation	Stitch Code	Needle Size	Thread Size	Machine Used
1.	Front & Back Shoulder Joining	514	11-Ball Point	80/120	Four Thread Overlock Machines
2.	Sleeve Joining	514	11-Ball Point	80/120	Four Thread Overlock Machines
3.	Side Seam Joining	514	11-Ball Point	80/120	Four Thread Overlock Machines
4.	Neck Rib Joining	514	11-Ball Point	80/120	Four Thread Overlock Machines
5.	Top Stitch on Neck Rib	406	11-Ball Point	80/120	Two Needles Flat Lock Machines with needle gauge 4mm
6.	Sleeve & Bottom Hemming	406	11-Ball Point	80/120	Two Needles Flat Lock Machines with needle gauge 8mm

Note: The number of stitches shall not be less than 12 Stitch per inches.

6. **Shape and dimensions**

The T-Shirt shall conform to the requirement given in (Annexure-B)

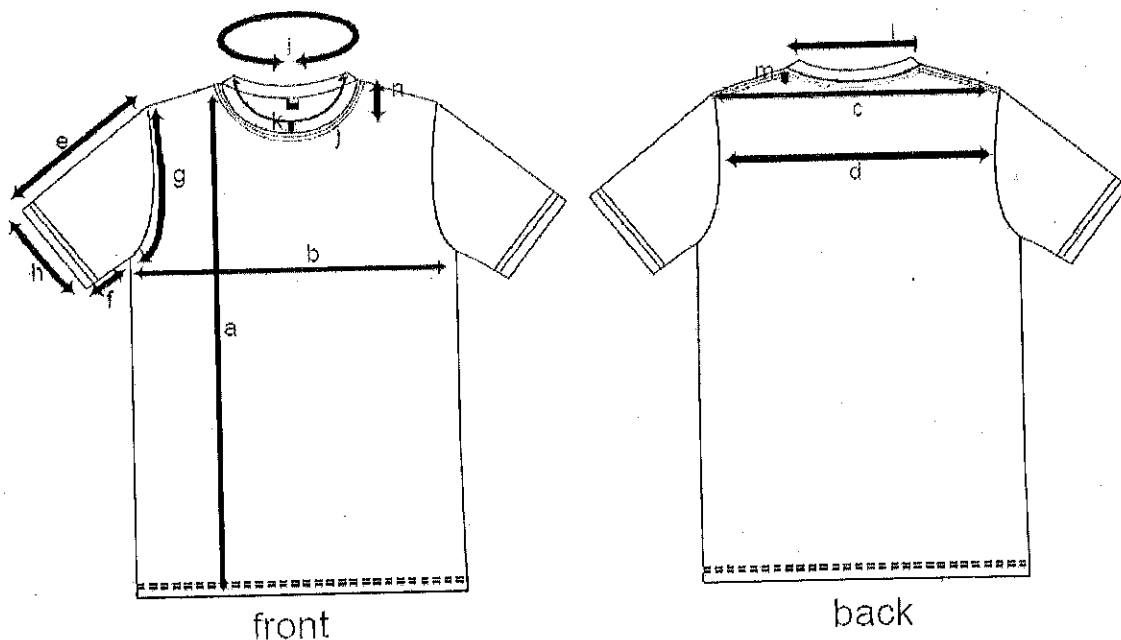
7. **Packaging**

S.No.	Materials	Dimension
1.	Re-Cycle Card-Board 300 gsm	26cm x 22cm
2.	Transparent Polybag (Printed on bag: Kindly dispose after used)	35cm x 27cm
3.	Plastic Packing Clip (U Shape)	4.0 cm x .7 cm x .3 cm
4.	Paper Strip/ Fabric Ribbon strip	If required
5.	Wash Care Label, Stamp-Ink on Center Back Neck	Standard Size 3cm x 4cm

8-6

Annexure-B

MENS T-SHIRT



Size Specification of T-Shirt (half sleeves round neck)							Tolerance
Sl. No.	Size	Size in inches					
		S	M	L	XL	XXL	
a	length from (HSP)	28.5	29	29.5	30	31	±0.5
b	chest width round	40	42	44	46	48	±1.0
c	shoulder seam to seam	17.5	18	18.5	19	19.5	±0.25
d	across back 4" down from center back	16.5	17	17.5	18	18.5	±0.25
e	sleeve length	8.5	9	9.5	10	10.5	±0.25
f	inseam length	4	4.5	5	5.5	6	±0.25
g	arm hole curve round	19	20	21	22	23	±0.25
h	sleeve opening (round)	14	14	14.5	15	15.5	±0.25
i	neck rib round	17.5	18	18.5	19	19.5	±0.25
j	neck round on seam	23	23.5	24	24.5	25	±0.25
k	neck rib height	1	1	1	1	1	-
l	neck width shoulder seam to shoulder seam	7.75	8	8.25	8.5	8.75	±0.15
m	back neck drop	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	-
n	front neck drop	3	3	3	3	3	±0.15

CBF ITBP BSF NSG SSB CAPP

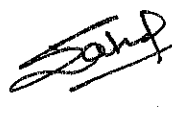
BORDER SECURITY FORCE (BSF) STANDARD



SPECIFICATION FOR COLOUR CODE
OF CLOTH DISRUPTIVE PATTERN


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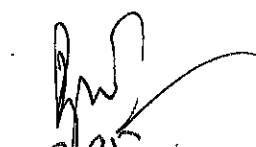

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Fig. : SPECIFICATION FOR COLOUR CODE
OF CLOTH DISRUPTIVE PATTERN

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Table-1A : Colour Specification of Disruptive Pattern-(Brown)

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

Colour : BROWN

System : CIE LCH

Illuminant Observer : D-65

Standard Observer : 10 Degree

Tristimulus Values	X	Y	Z
	5.664	5.640	4.432

LCH	L	C	H
	28.485	8.448	63.758

CMC (l:c) : 2:1

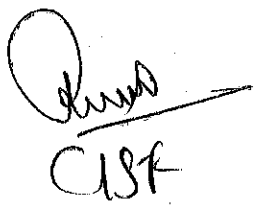
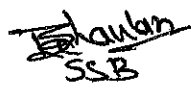
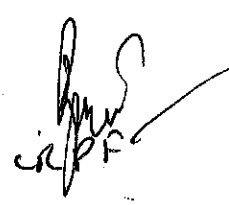
Colour Difference, ΔE_{cmc} : ≤ 3.0

Interpretation of Results:

- If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- If ΔE_{cmc} is greater than 3, the sample is unacceptable.

Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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.

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Table-1B : Colour Specification of Disruptive Pattern -(Green)

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

Colour : GREEN

System : CIE LCH

Illuminant Observer : D-65

Standard Observer : 10 Degree

Tristimulus Values	X	Y	Z
	4.103	4.654	4.176

LCH	L	C	H
	25.725	5.988	135.782

CMC (l:c) : 2:1

Colour Difference, ΔE_{cmc} : ≤ 3.0

Interpretation of Results:

- If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- If ΔE_{cmc} is greater than 3, the sample is unacceptable.

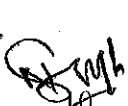
Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample of same type i.e. identical fabric construction parameters and filament/ fibre composition.

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


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Table-1C : Colour Specification of Disruptive Pattern-(Khaki)

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

Colour	:	KHAKI						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table><tr><th>X</th><th>Y</th><th>Z</th></tr><tr><td>16.918</td><td>17.722</td><td>10.822</td></tr></table>	X	Y	Z	16.918	17.722	10.822
X	Y	Z						
16.918	17.722	10.822						
LCH	:	<table><tr><th>L</th><th>C</th><th>H</th></tr><tr><td>49.157</td><td>19.275</td><td>87.970</td></tr></table>	L	C	H	49.157	19.275	87.970
L	C	H						
49.157	19.275	87.970						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

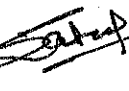
- If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- If ΔE_{cmc} is greater than 3, the sample is unacceptable.

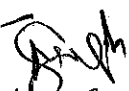
Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample of same type i.e. identical fabric construction parameters and filament/ fibre composition.

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

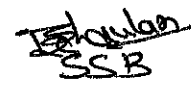

ASR


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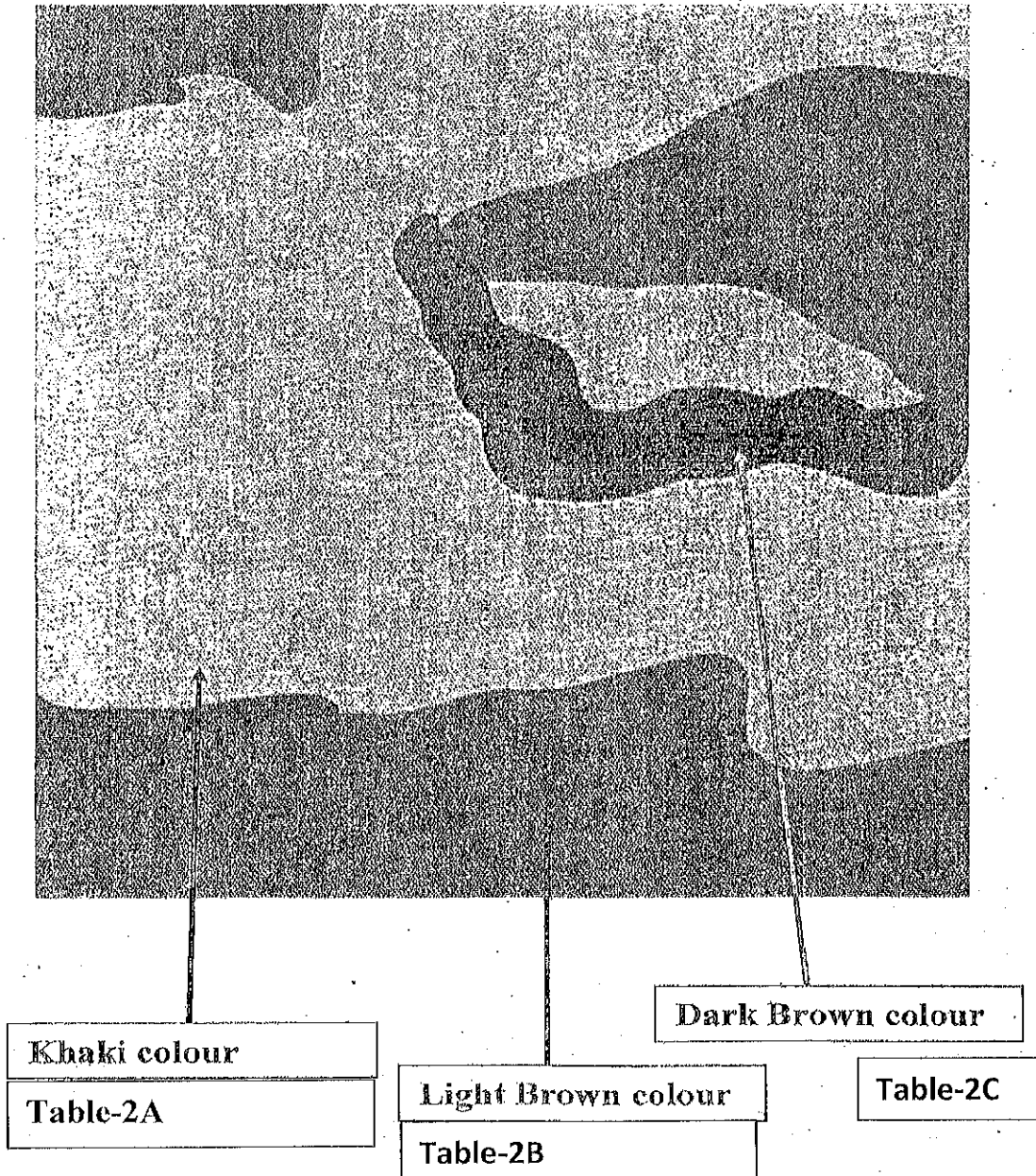

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CENTRAL INDUSTRIAL SECURITY FORCE (CISF)



Picture of disruptive pattern cloth

COLOUR SPECIFICATION OF Cloth Disruptive Pattern-CISF

[Signatures]
CISF ITBP BSF *[Signature]* NSG *[Signature]* *[Signature]*

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CISF

Table-2A: Colour Specification of Cloth Disruptive Pattern-Khaki
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

Colour	:	KHAKI COLOUR						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table> <tr> <th>X</th><th>Y</th><th>Z</th></tr> <tr> <td>19.649</td><td>19.862</td><td>12.822</td></tr> </table>	X	Y	Z	19.649	19.862	12.822
X	Y	Z						
19.649	19.862	12.822						
LCH	:	<table> <tr> <th>L</th><th>C</th><th>H</th></tr> <tr> <td>51.681</td><td>18.678</td><td>76.999</td></tr> </table>	L	C	H	51.681	18.678	76.999
L	C	H						
51.681	18.678	76.999						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3						

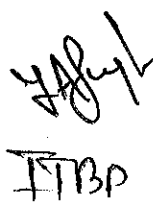
Interpretation of Results:

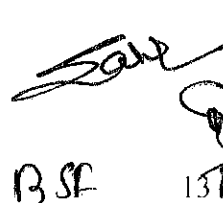
- If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- If ΔE_{cmc} is greater than 3, the sample is unacceptable.

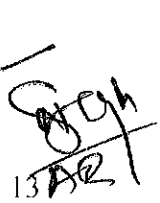
Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample of same type i.e. identical fabric construction parameters and filament/ fibre composition.

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

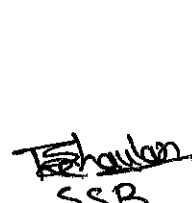

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Table-2B : Colour Specification of Cloth Disruptive Pattern-Light Brown
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

Colour	:	LIGHT BROWN COLOUR						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>7.187</td><td>7.007</td><td>3.972</td></tr></table>	X	Y	Z	7.187	7.007	3.972
X	Y	Z						
7.187	7.007	3.972						
LCH	:	<table><tr><td>L</td><td>C</td><td>H</td></tr><tr><td>31.823</td><td>16.740</td><td>70.802</td></tr></table>	L	C	H	31.823	16.740	70.802
L	C	H						
31.823	16.740	70.802						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3						

Interpretation of Results:

- If ΔE_{cmc} is less than or equal to 3.0, then sample is acceptable.
- If ΔE_{cmc} is greater than 3.0, the sample is unacceptable.

Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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 Defuse (sphere) geometry spectrophotometer.

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Table-2C: Colour Specification of Disruptive Pattern-Dark Brown colour
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

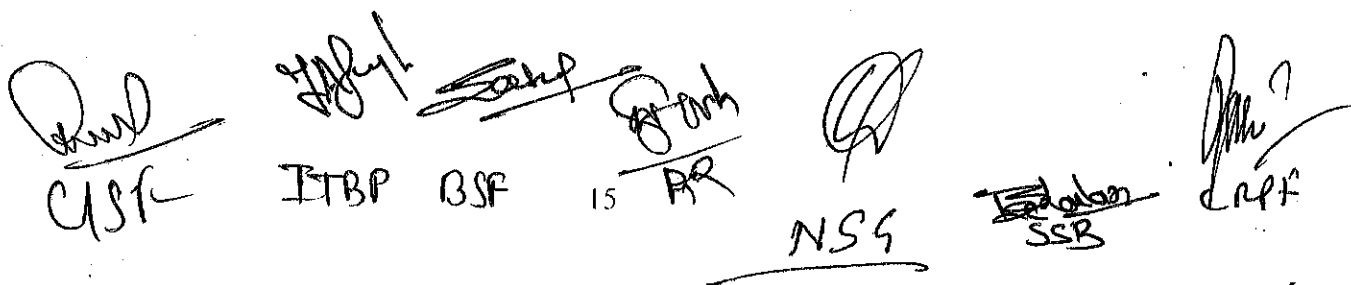
Colour	:	DARK BROWN COLOUR						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table><tr><th>X</th><th>Y</th><th>Z</th></tr><tr><td>4.924</td><td>4.651</td><td>2.999</td></tr></table>	X	Y	Z	4.924	4.651	2.999
X	Y	Z						
4.924	4.651	2.999						
LCH	:	<table><tr><th>L</th><th>C</th><th>H</th></tr><tr><td>25.716</td><td>13.115</td><td>58.976</td></tr></table>	L	C	H	25.716	13.115	58.976
L	C	H						
25.716	13.115	58.976						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- If ΔE_{cmc} is less than or equal to 3.0, then sample is acceptable.
- If ΔE_{cmc} is greater than 3.0, the sample is unacceptable.

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

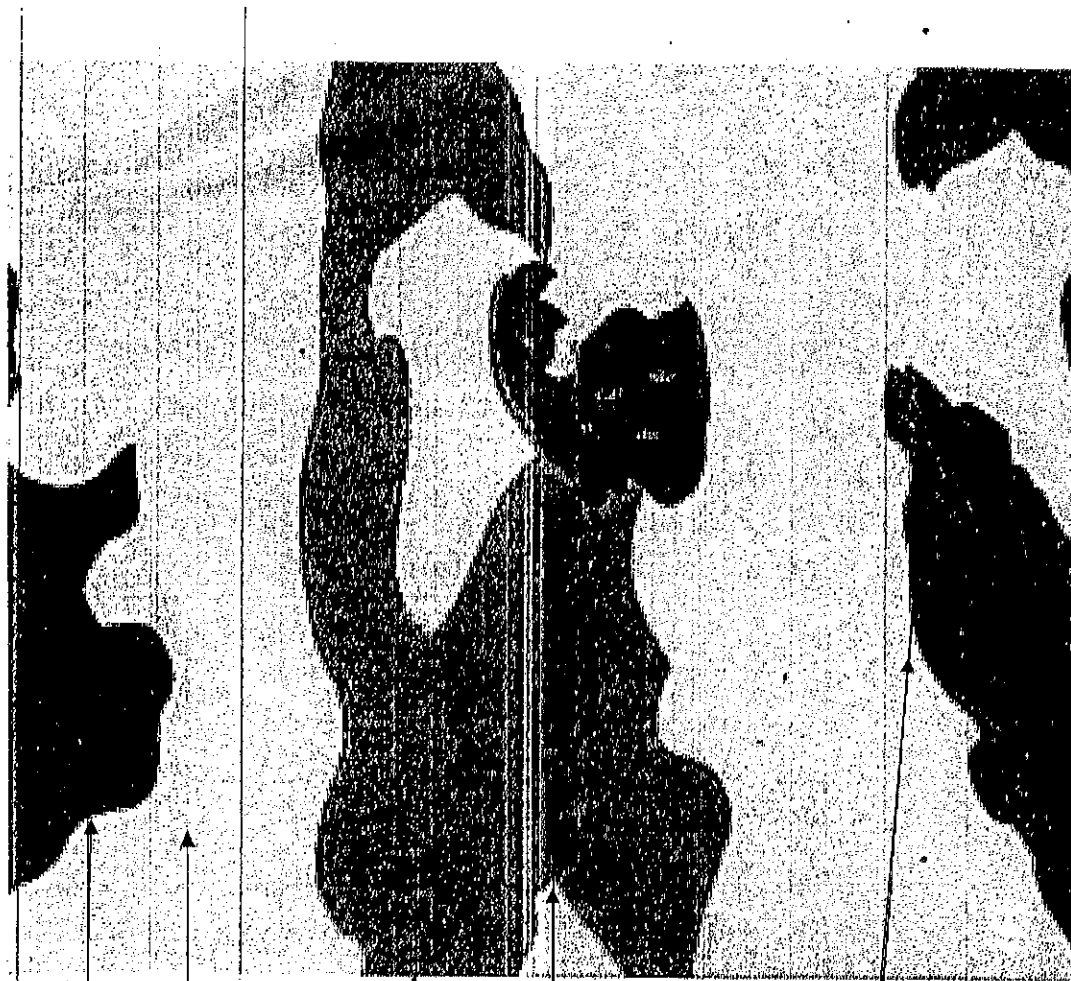
Note-2 Test should be carried out after proper conditioning as per AATCC 173 using Defuse (sphere) geometry spectrophotometer.


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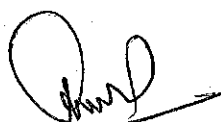
Dark Green
Table-3C

Beige
Table-3E

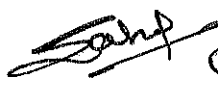
Light Brown
Table-3B

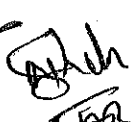
Light Green
Table-3D

Dark Brown
Table-3A


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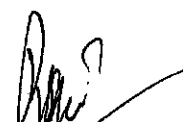

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Table-3A: Colour Specification of Cloth Disruptive (Regular Pattern)-Dark Brown
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

Colour	:	Dark Brown						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table border="1"> <thead> <tr> <th>X</th><th>Y</th><th>Z</th></tr> </thead> <tbody> <tr> <td>13.085</td><td>11.287</td><td>5.878</td></tr> </tbody> </table>	X	Y	Z	13.085	11.287	5.878
X	Y	Z						
13.085	11.287	5.878						
LCH	:	<table border="1"> <thead> <tr> <th>L</th><th>C</th><th>H</th></tr> </thead> <tbody> <tr> <td>40.060</td><td>26.656</td><td>50.968</td></tr> </tbody> </table>	L	C	H	40.060	26.656	50.968
L	C	H						
40.060	26.656	50.968						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- If ΔE_{cmc} is greater than 3, the sample is unacceptable.

Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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.

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Table-3B : Colour Specification of Cloth Disruptive (Regular Pattern)-Light Brown
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

Colour	:	LIGHT BROWN						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table><tr><th>X</th><th>Y</th><th>Z</th></tr><tr><td>18.264</td><td>16.229</td><td>8.161</td></tr></table>	X	Y	Z	18.264	16.229	8.161
X	Y	Z						
18.264	16.229	8.161						
LCH	:	<table><tr><th>L</th><th>C</th><th>H</th></tr><tr><td>47.274</td><td>29.191</td><td>56.583</td></tr></table>	L	C	H	47.274	29.191	56.583
L	C	H						
47.274	29.191	56.583						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- i) If ΔE_{cmc} is less than or equal to 3.0, then sample is acceptable.
- ii) If ΔE_{cmc} is greater than 3.0, the sample is unacceptable.

Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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 Defuse (sphere) geometry spectrophotometer.

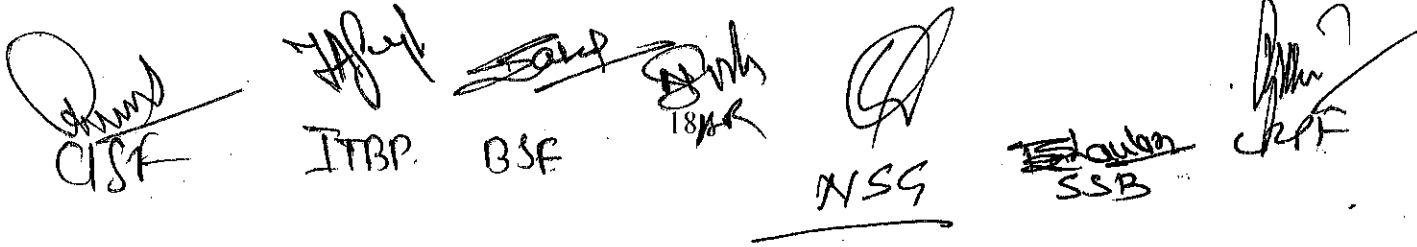


Table-3C: Colour Specification of Cloth Disruptive (Regular Pattern)-Dark Green
(Guideline of AATCC Test Method 173: 2009 & AATCC Evaluation Procedure-7:2009)

Colour	:	DARK GREEN						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table border="1"> <thead> <tr> <th>X</th><th>Y</th><th>Z</th></tr> </thead> <tbody> <tr> <td>8.002</td><td>8.405</td><td>5.392</td></tr> </tbody> </table>	X	Y	Z	8.002	8.405	5.392
X	Y	Z						
8.002	8.405	5.392						
LCH	:	<table border="1"> <thead> <tr> <th>L</th><th>C</th><th>H</th></tr> </thead> <tbody> <tr> <td>34.812</td><td>13.823</td><td>88.617</td></tr> </tbody> </table>	L	C	H	34.812	13.823	88.617
L	C	H						
34.812	13.823	88.617						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- i) If ΔE_{cmc} is less than or equal to 3.0, then sample is acceptable.
- ii) If ΔE_{cmc} is greater than 3.0, the sample is unacceptable.

Note-1 : Absorbance/reflectance/transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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 Defuse (sphere) geometry spectrophotometer.

Table-3D : Colour Specification of Cloth Disruptive (Regular Pattern)-Light Green
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

Colour	:	LIGHT GREEN						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table border="1"> <thead> <tr> <th>X</th><th>Y</th><th>Z</th></tr> </thead> <tbody> <tr> <td>12.159</td><td>12.854</td><td>8.200</td></tr> </tbody> </table>	X	Y	Z	12.159	12.854	8.200
X	Y	Z						
12.159	12.854	8.200						
LCH	:	<table border="1"> <thead> <tr> <th>L</th><th>C</th><th>H</th></tr> </thead> <tbody> <tr> <td>42.542</td><td>16.081</td><td>90.635</td></tr> </tbody> </table>	L	C	H	42.542	16.081	90.635
L	C	H						
42.542	16.081	90.635						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- i) If ΔE_{cmc} is less than or equal to 3.0, then sample is acceptable.
- ii) If ΔE_{cmc} is greater than 3.0, the sample is unacceptable.

Note-1 : Absorbance/reflectance/transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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 Defuse (sphere) geometry spectrophotometer.

Table-3E: Colour Specification of Cloth Disruptive (Regular Pattern)-Beige Colour
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

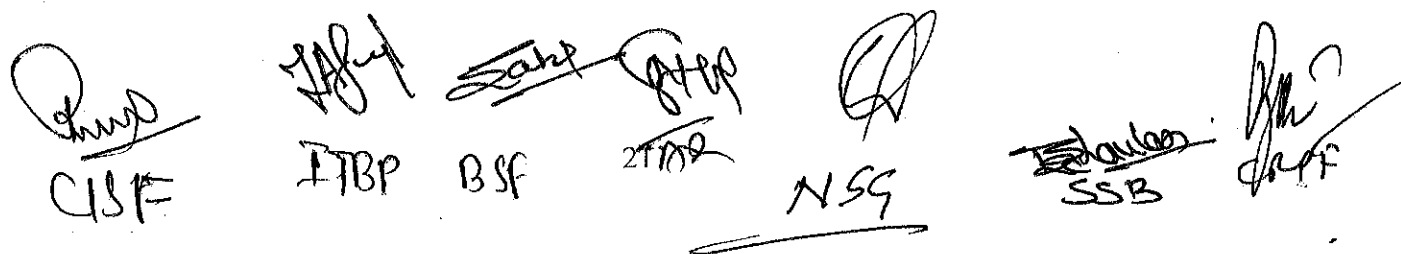
Colour	:	BEIGE COLOUR						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table border="1"> <thead> <tr> <th>X</th><th>Y</th><th>Z</th></tr> </thead> <tbody> <tr> <td>50.337</td><td>51.005</td><td>44.003</td></tr> </tbody> </table>	X	Y	Z	50.337	51.005	44.003
X	Y	Z						
50.337	51.005	44.003						
LCH	:	<table border="1"> <thead> <tr> <th>L</th><th>C</th><th>H</th></tr> </thead> <tbody> <tr> <td>76.682</td><td>12.475</td><td>64.237</td></tr> </tbody> </table>	L	C	H	76.682	12.475	64.237
L	C	H						
76.682	12.475	64.237						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- If ΔE_{cmc} is less than or equal to 3.0, then sample is acceptable.
- If ΔE_{cmc} is greater than 3.0, the sample is unacceptable.

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

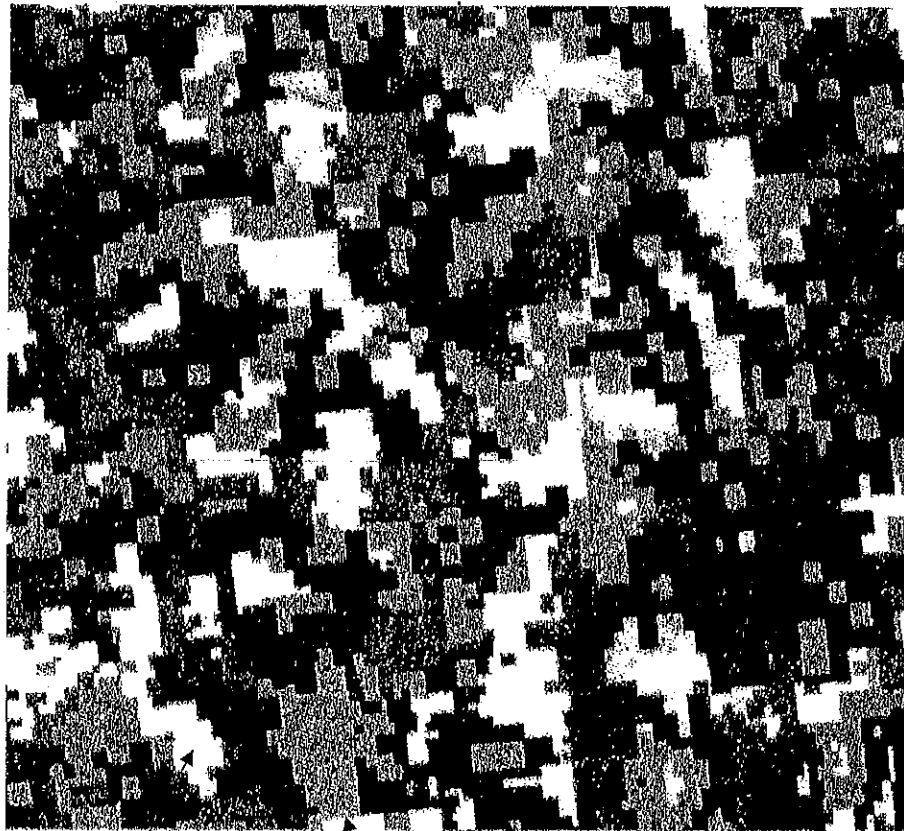
Note-2 Test should be carried out after proper conditioning as per AATCC 173 using Defuse (sphere) geometry spectrophotometer.



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Khaki
Table-4A

Green
Table-4B

Black
Table-4D

Brown
Table-4C

SPECIFICATION FOR COLOUR CODE OF CLOTH DISRUPTIVE PATTERN (ANO)

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Table-4A: Colour Specification of Cloth Disruptive (ANO Pattern)-Khaki
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

Colour : KHAKI

System : CIE LCH

Illuminant Observer : D-65

Standard Observer : 10 Degree

Tristimulus Values	X	Y	Z
	22.115	23.558	15.980

LCH	L	C	H
	55.643	17.559	93.264

CMC (l:c) : 2:1

Colour Difference, ΔE_{cmc} : ≤ 3.0

Interpretation of Results:

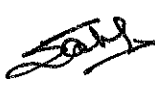
- If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- If ΔE_{cmc} is greater than 3, the sample is unacceptable.

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

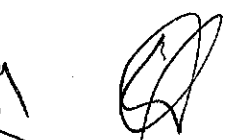
Note-2 Test should be carried out after proper conditioning as per AATCC 173 using Diffuse (sphere) geometry spectrophotometer.


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Table-4B: Colour Specification of Cloth Disruptive (ANO Pattern)-Green
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

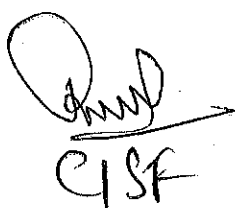
Colour	:	GREEN						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table><tr><th>X</th><th>Y</th><th>Z</th></tr><tr><td>8.942</td><td>10.059</td><td>6.062</td></tr></table>	X	Y	Z	8.942	10.059	6.062
X	Y	Z						
8.942	10.059	6.062						
LCH	:	<table><tr><th>L</th><th>C</th><th>H</th></tr><tr><td>37.948</td><td>17.013</td><td>106.828</td></tr></table>	L	C	H	37.948	17.013	106.828
L	C	H						
37.948	17.013	106.828						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

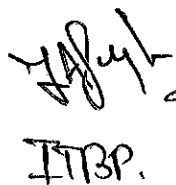
Interpretation of Results:

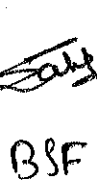
- If ΔE_{cmc} is less than or equal to 3.0, then sample is acceptable.
- If ΔE_{cmc} is greater than 3.0, the sample is unacceptable.

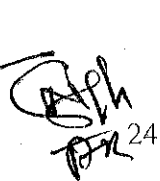
Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample of same type i.e. identical fabric construction parameters and filament/ fibre composition.

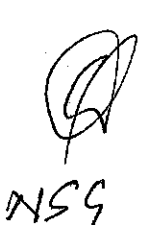
Note-2 Test should be carried out after proper conditioning as per AATCC 173 using Defuse (sphere) geometry spectrophotometer.

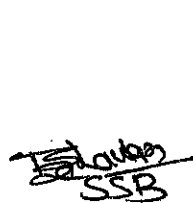

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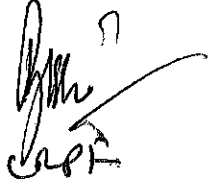

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Table-4C : Colour Specification of Cloth Disruptive (ANO Pattern)-Brown Colour
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

Colour	:	BROWN						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table><tr><th>X</th><th>Y</th><th>Z</th></tr><tr><td>5.399</td><td>5.160</td><td>3.688</td></tr></table>	X	Y	Z	5.399	5.160	3.688
X	Y	Z						
5.399	5.160	3.688						
LCH	:	<table><tr><th>L</th><th>C</th><th>H</th></tr><tr><td>27.186</td><td>11.318</td><td>56.538</td></tr></table>	L	C	H	27.186	11.318	56.538
L	C	H						
27.186	11.318	56.538						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- iii) If ΔE_{cmc} is less than or equal to 3.0, then sample is acceptable.
- iv) If ΔE_{cmc} is greater than 3.0, the sample is unacceptable.

Note-1 : Absorbance/reflectance/transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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 Defuse (sphere) geometry spectrophotometer.


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Table-4D : Colour Specification of Cloth Disruptive (ANO Pattern)-Black Colour
(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	:	<table border="1"> <thead> <tr> <th>X</th><th>Y</th><th>Z</th></tr> </thead> <tbody> <tr> <td>3.353</td><td>3.428</td><td>3.156</td></tr> </tbody> </table>	X	Y	Z	3.353	3.428	3.156
X	Y	Z						
3.353	3.428	3.156						
LCH	:	<table border="1"> <thead> <tr> <th>L</th><th>C</th><th>H</th></tr> </thead> <tbody> <tr> <td>21.682</td><td>3.670</td><td>62.153</td></tr> </tbody> </table>	L	C	H	21.682	3.670	62.153
L	C	H						
21.682	3.670	62.153						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- iii) If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- iv) If ΔE_{cmc} is greater than 3, the sample is unacceptable.

Note-1 : Absorbance/reflectance/transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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 Defuse (sphere) geometry spectrophotometer.

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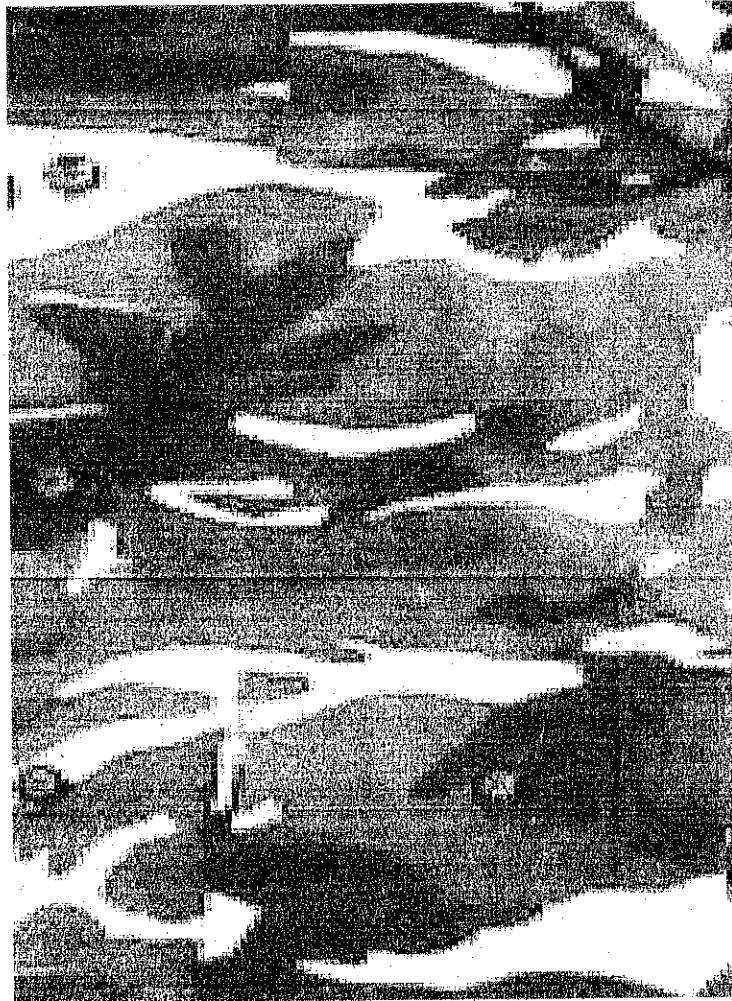
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CMT

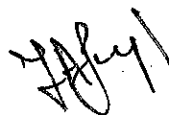
29 27

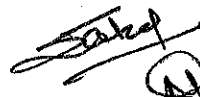
SASHASTRA SEEMA BAL (SSB)



COLOUR SPECIFICATION:
ACCORDING TO SSB CLOTH LFCD (REGULAR) PATTERN


CISF


ITBP


BSF


Ar 27


NSG


SSB


CRPF

CENTRAL RESERVE POLICE FORCE (CRPF)



GREEN
TABLE-5A

BROWN
TABLE-5B

KHAKI
TABLE-5C

Disruptive Print-Colour Specification for CRPF

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CISF

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ITBP

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BSF

[Signature]
AR 28

[Signature]
NSG

[Signature]
SSB

[Signature]
CRPF

Table-5A: Specification of colour Disruptive Pattern-Green
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

Colour	:	Green						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table border="1"> <thead> <tr> <th>X</th><th>Y</th><th>Z</th></tr> </thead> <tbody> <tr> <td>4.385</td><td>4.766</td><td>3.826</td></tr> </tbody> </table>	X	Y	Z	4.385	4.766	3.826
X	Y	Z						
4.385	4.766	3.826						
LCH	:	<table border="1"> <thead> <tr> <th>L</th><th>C</th><th>H</th></tr> </thead> <tbody> <tr> <td>26.057</td><td>6.933</td><td>104.977</td></tr> </tbody> </table>	L	C	H	26.057	6.933	104.977
L	C	H						
26.057	6.933	104.977						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- If ΔE_{cmc} is greater than 3, the sample is unacceptable.

Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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.


CRPF

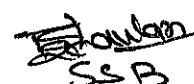

ITBP

BSF


AR

29


NSG


SSB


CRPF

Table-5B: Specification of colour Disruptive Pattern-Brown
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

Colour	:	Brown						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table border="1"> <thead> <tr> <th>X</th><th>Y</th><th>Z</th></tr> </thead> <tbody> <tr> <td>5.262</td><td>5.192</td><td>4.030</td></tr> </tbody> </table>	X	Y	Z	5.262	5.192	4.030
X	Y	Z						
5.262	5.192	4.030						
LCH	:	<table border="1"> <thead> <tr> <th>L</th><th>C</th><th>H</th></tr> </thead> <tbody> <tr> <td>27.275</td><td>8731</td><td>61.138</td></tr> </tbody> </table>	L	C	H	27.275	8731	61.138
L	C	H						
27.275	8731	61.138						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- i) If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- ii) If ΔE_{cmc} is greater than 3, the sample is unacceptable.

Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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.

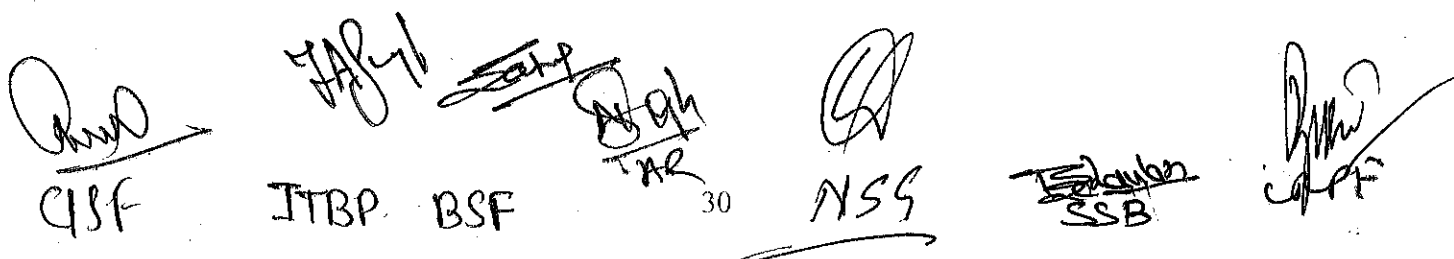


Table-5C: Specification of colour Disruptive Pattern-Khaki
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

Colour	:	Khaki						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table border="1"> <thead> <tr> <th>X</th><th>Y</th><th>Z</th></tr> </thead> <tbody> <tr> <td>19.478</td><td>19.974</td><td>12.295</td></tr> </tbody> </table>	X	Y	Z	19.478	19.974	12.295
X	Y	Z						
19.478	19.974	12.295						
LCH	:	<table border="1"> <thead> <tr> <th>L</th><th>C</th><th>H</th></tr> </thead> <tbody> <tr> <td>51.808</td><td>19.983</td><td>81.959</td></tr> </tbody> </table>	L	C	H	51.808	19.983	81.959
L	C	H						
51.808	19.983	81.959						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- If ΔE_{cmc} is greater than 3, the sample is unacceptable.

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

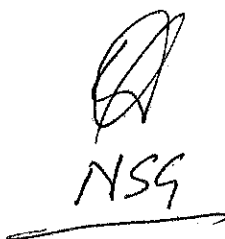
Note-2 Test should be carried out after proper conditioning as per AATCC 173.


QSR


ITBD


BSF


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NSG


SSB


CRPF

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CoBRA (CRPF)

Disruptive Print-Colour Specification for CoBRA, CRPF

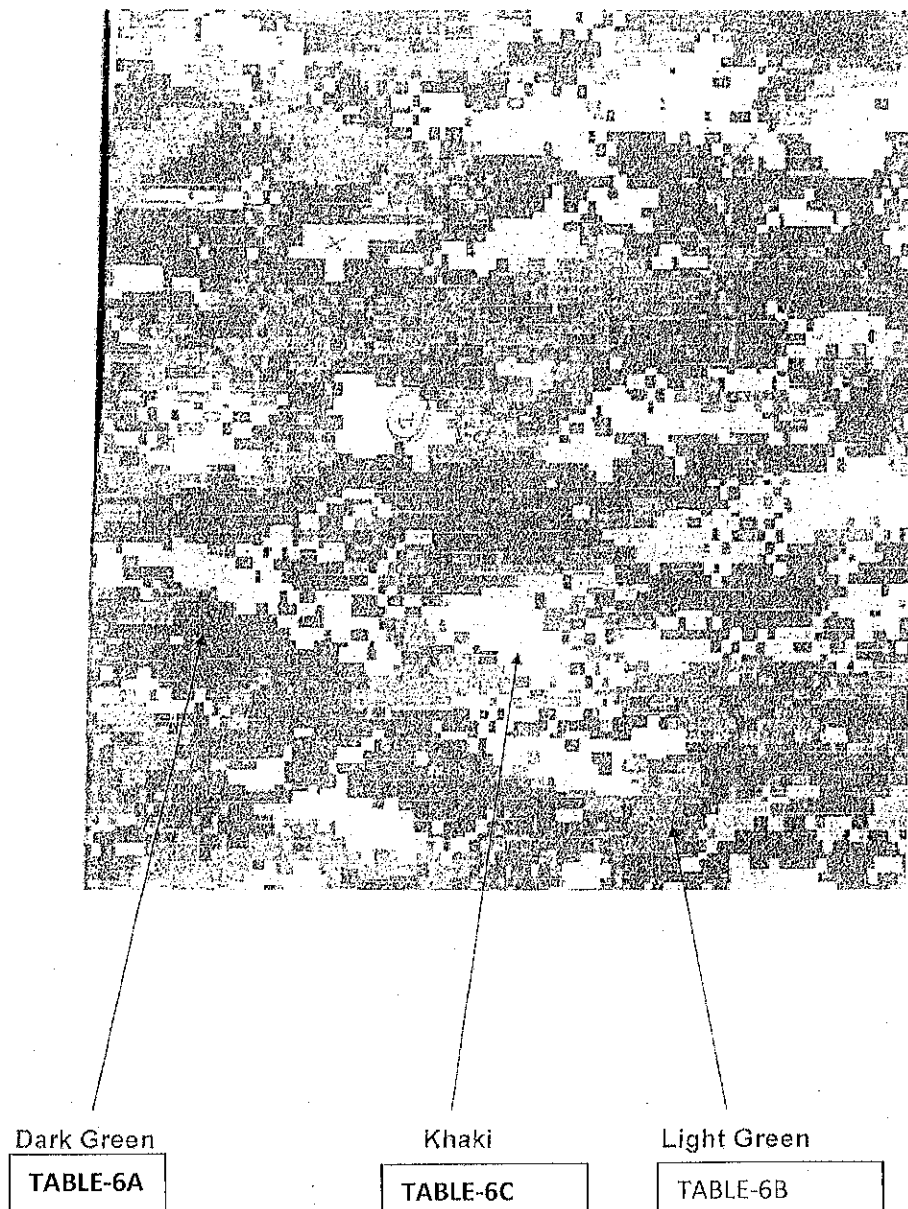


Fig. 2 : Disruptive Print -LIGHT COLOUR (For colour identification only)

[Handwritten signatures and initials]
QSF 71871 BSF ASL 32 NSG SSB CRPF

CoBRA (CRPF)

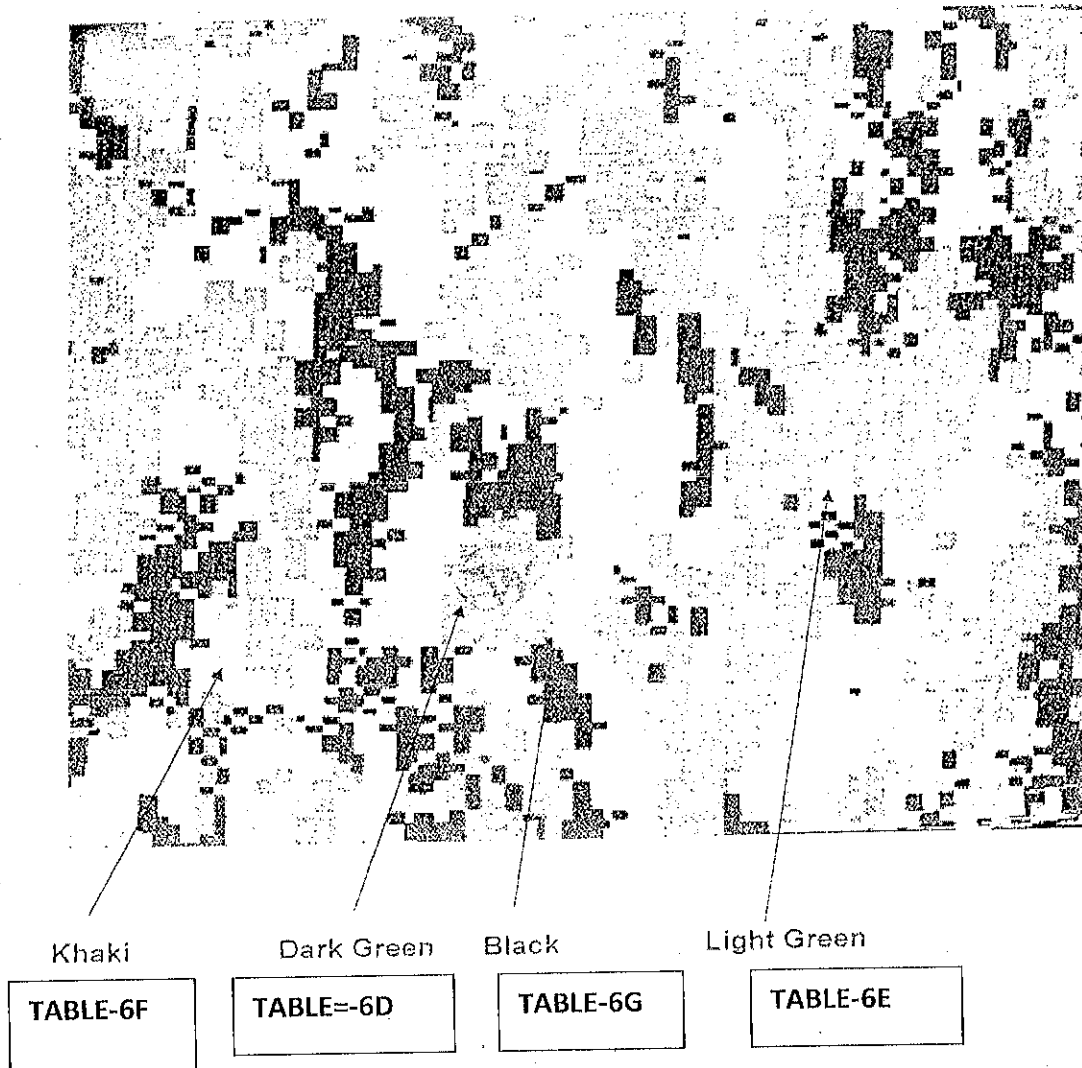


Fig. 3 Disruptive Print -DARK COLOUR (For colour identification only)

[Handwritten signatures and initials]
QSF ITBP BSF NSG SSB CRPF

33

(36) (34)

CoBRA (CRPF)

TABLE-6(A-C): DISRUPTIVE PRINT-LIGHT COLOUR
Table-6A: Specification of colour Disruptive Pattern –Dark Green
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

Colour	:	Dark Green						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table><tr><th>X</th><th>Y</th><th>Z</th></tr><tr><td>12.113</td><td>13.044</td><td>12.675</td></tr></table>	X	Y	Z	12.113	13.044	12.675
X	Y	Z						
12.113	13.044	12.675						
LCH	:	<table><tr><th>L</th><th>C</th><th>H</th></tr><tr><td>42.829</td><td>3.739</td><td>117.481</td></tr></table>	L	C	H	42.829	3.739	117.481
L	C	H						
42.829	3.739	117.481						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- iii) If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- iv) If ΔE_{cmc} is greater than 3, the sample is unacceptable.

Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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.

C/SF ITBP BSF NSG S/B CRPF

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CoBRA (CRPF)

Table-6B: Specification of colour Disruptive Pattern (Light Colour)-Light Green
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

Colour	:	Light Green						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table><tr><th>X</th><th>Y</th><th>Z</th></tr><tr><td>19.319</td><td>20.577</td><td>18.966</td></tr></table>	X	Y	Z	19.319	20.577	18.966
X	Y	Z						
19.319	20.577	18.966						
LCH	:	<table><tr><th>L</th><th>C</th><th>H</th></tr><tr><td>52.783</td><td>5.930</td><td>99.085</td></tr></table>	L	C	H	52.783	5.930	99.085
L	C	H						
52.783	5.930	99.085						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

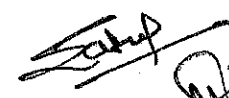
- If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- If ΔE_{cmc} is greater than 3, the sample is unacceptable.

Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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.

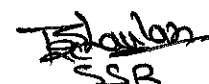

CSF


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CoBRA (CRPF)

Table-6C: Specification of colour Disruptive Pattern (Light Colour)-Khaki
(Guideline of AATCC Test Method 173.: 2009 & AATCC Evaluation Procedure-7:2009)

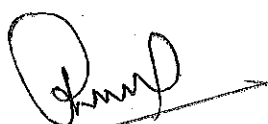
Colour	:	Khaki						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table border="1"> <thead> <tr> <th>X</th><th>Y</th><th>Z</th></tr> </thead> <tbody> <tr> <td>31.643</td><td>32.716</td><td>28.306</td></tr> </tbody> </table>	X	Y	Z	31.643	32.716	28.306
X	Y	Z						
31.643	32.716	28.306						
LCH	:	<table border="1"> <thead> <tr> <th>L</th><th>C</th><th>H</th></tr> </thead> <tbody> <tr> <td>63.930</td><td>9.848</td><td>76.272</td></tr> </tbody> </table>	L	C	H	63.930	9.848	76.272
L	C	H						
63.930	9.848	76.272						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- If ΔE_{cmc} is greater than 3, the sample is unacceptable.

Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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.


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(29) (37)

CoBRA (CRPF)

TABLE-6(D-G): DISRUPTIVE PRINT-DARK COLOUR

Table-6D: Specification of colour Disruptive Pattern (Dark Colour)-DARK GREEN COLOUR

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

Colour	:	Dark Green						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table><tr><th>X</th><th>Y</th><th>Z</th></tr><tr><td>5.234</td><td>5.964</td><td>4.813</td></tr></table>	X	Y	Z	5.234	5.964	4.813
X	Y	Z						
5.234	5.964	4.813						
LCH	:	<table><tr><th>L</th><th>C</th><th>H</th></tr><tr><td>29.321</td><td>8.650</td><td>124.923</td></tr></table>	L	C	H	29.321	8.650	124.923
L	C	H						
29.321	8.650	124.923						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

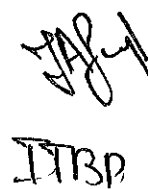
Interpretation of Results:

- If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- If ΔE_{cmc} is greater than 3, the sample is unacceptable.

Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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.

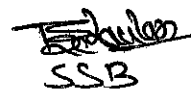

CISE


ITBP

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CoBRA (CRPF)

Table-6E: Specification of colour Disruptive Pattern (Dark Colour)-LIGHT GREEN COLOUR

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

Colour	:	Light Green						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table><tr><th>X</th><th>Y</th><th>Z</th></tr><tr><td>13.838</td><td>14.418</td><td>11.139</td></tr></table>	X	Y	Z	13.838	14.418	11.139
X	Y	Z						
13.838	14.418	11.139						
LCH	:	<table><tr><th>L</th><th>C</th><th>H</th></tr><tr><td>44.827</td><td>10.951</td><td>84.217</td></tr></table>	L	C	H	44.827	10.951	84.217
L	C	H						
44.827	10.951	84.217						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- If ΔE_{cmc} is greater than 3, the sample is unacceptable.

Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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.

Handwritten signatures and initials at the bottom of the page:

- CLSF
- ITBP
- BSF
- 38
- NSF
- SSB
- CRPF

CoBRA (CRPF)

**Table-6F: Specification of colour Disruptive Pattern (Dark Colour)-KHAKE
COLOUR**

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

Colour : Khaki

System : CIE LCH

Illuminant Observer : D-65

Standard Observer : 10 Degree

Tristimulus Values	X	Y	Z
	10.410	10.217	6.302

LCH	L	C	H
	38.229	16.771	70.096

CMC (l:c) : 2:1

Colour Difference, ΔE_{cmc} : ≤ 3.0

Interpretation of Results:

- i) If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- ii) If ΔE_{cmc} is greater than 3, the sample is unacceptable.

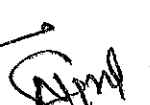
Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample of same type i.e. identical fabric construction parameters and filament/ fibre composition.

Note-2 Test should be carried out after proper conditioning as per AATCC 173.


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CRPF

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CoBRA (CRPF)

Table-6G: Specification of colour Disruptive Pattern (Dark Colour)-BLACK COLOUR

(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
2.294	2.393	2.994

LCH :

L	C	H
17.428	3.064	280.297

CMC (l:c) : 2:1

Colour Difference, ΔE_{cmc} : ≤ 3.0

Interpretation of Results:

- If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- If ΔE_{cmc} is greater than 3, the sample is unacceptable.

Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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.


CISH

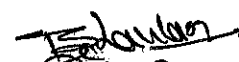

ITBP

BSF


AOR

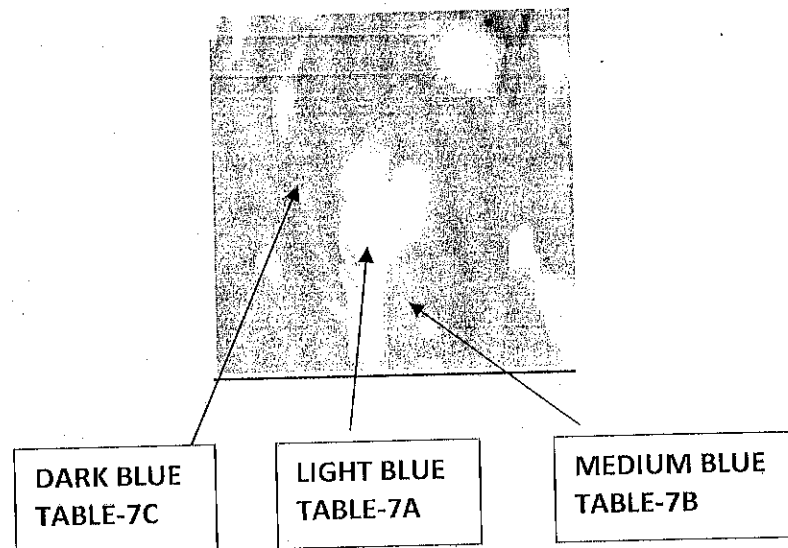
40


NSG


SSB


CRPF

RAPID ACTION FORCE(RAF), CRPF



COLOUR SPECIFICATION OF DISRUPTIVE PATTERN RAF, CRPF

Prasad
CISF

Y. R. Singh
ITBP

S. Singh
BSF

Prasad
AR

Prasad
NSG

Prasad
SSB

Prasad
CRPF

440 42

RAF, CRPF

Table-7A: Colour Specification of Cloth Disruptive Pattern-Light Blue
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

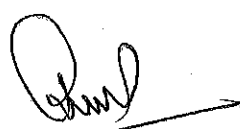
Colour	:	Light Blue						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table> <tr> <th>X</th><th>Y</th><th>Z</th></tr> <tr> <td>23.673</td><td>25.605</td><td>45.514</td></tr> </table>	X	Y	Z	23.673	25.605	45.514
X	Y	Z						
23.673	25.605	45.514						
LCH	:	<table> <tr> <th>L</th><th>C</th><th>H</th></tr> <tr> <td>57.660</td><td>23.383</td><td>263.32</td></tr> </table>	L	C	H	57.660	23.383	263.32
L	C	H						
57.660	23.383	263.32						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- v) If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- vi) If ΔE_{cmc} is greater than 3, the sample is unacceptable.

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

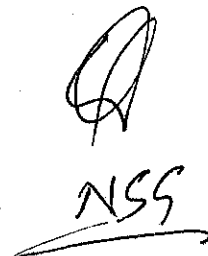
Note-2 Test should be carried out after proper conditioning as per AATCC 173.

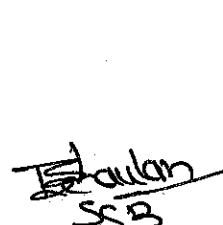

CIST


ITBP


BSF

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NSS


SSB


CRPF

RAF, CRPF

Table-7B: Colour Specification of Cloth Disruptive Pattern-Medium Blue
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2009)

Colour	:	Medium Blue						
System	:	CIE LCH						
Illuminant Observer	:	D-65						
Standard Observer	:	10 Degree						
Tristimulus Values	:	<table border="1"> <thead> <tr> <th>X</th><th>Y</th><th>Z</th></tr> </thead> <tbody> <tr> <td>11.164</td><td>11.863</td><td>25.099</td></tr> </tbody> </table>	X	Y	Z	11.164	11.863	25.099
X	Y	Z						
11.164	11.863	25.099						
LCH	:	<table border="1"> <thead> <tr> <th>L</th><th>C</th><th>H</th></tr> </thead> <tbody> <tr> <td>40.998</td><td>24.040</td><td>268.623</td></tr> </tbody> </table>	L	C	H	40.998	24.040	268.623
L	C	H						
40.998	24.040	268.623						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- i) If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- ii) If ΔE_{cmc} is greater than 3, the sample is unacceptable.

Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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.

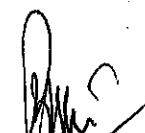

GSF


ITBP


BSF


NSG


SSB


CRPF

(46) (44)

RAF, CRPF

Table-7C: Colour Specification of Cloth Disruptive Pattern-Dark Blue
(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	:	<table><tr><th>X</th><th>Y</th><th>Z</th></tr><tr><td>3.878</td><td>3.905</td><td>9.061</td></tr></table>	X	Y	Z	3.878	3.905	9.061
X	Y	Z						
3.878	3.905	9.061						
LCH	:	<table><tr><th>L</th><th>C</th><th>H</th></tr><tr><td>23.355</td><td>20.051</td><td>277.651</td></tr></table>	L	C	H	23.355	20.051	277.651
L	C	H						
23.355	20.051	277.651						
CMC (l:c)	:	2:1						
Colour Difference, ΔE_{cmc}	:	≤ 3.0						

Interpretation of Results:

- i) If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- ii) If ΔE_{cmc} is greater than 3, the sample is unacceptable.

Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between sample 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.

CISF ITBP BSR DR NSS SSB CRPF

VIP Security, CRPF

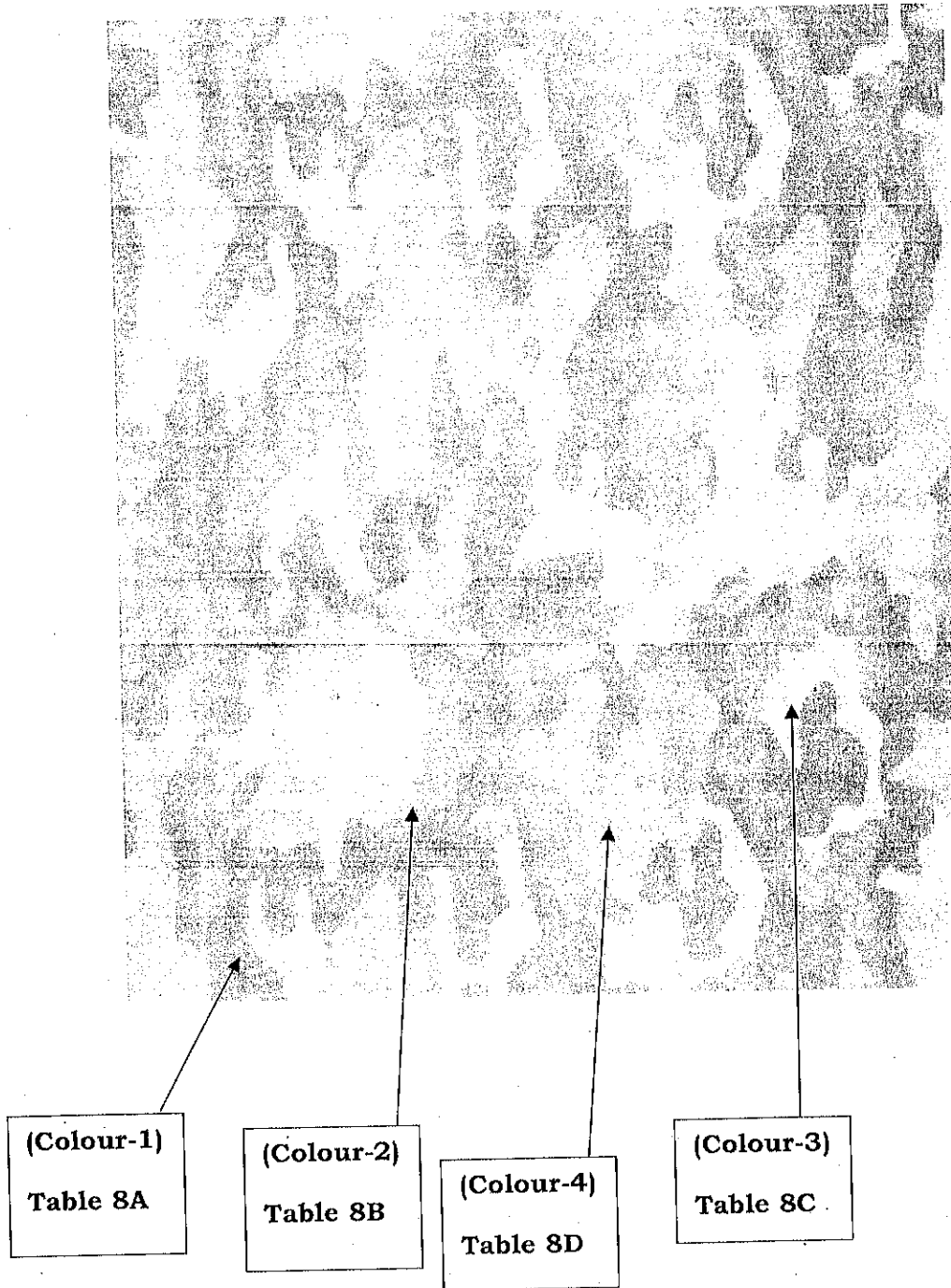


Fig. : Disruptive Print (For colour identification only)

COLOUR SPECIFICATION OF DISRUPTIVE PATTERN VIP Security, CRPF

[Signature]
CISF

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ITBP

[Signature]
BSF

45

[Signature]
NSG

[Signature]
SSB

[Signature]
CRPF

TABLE 8A (Fig.) Specification of colour of Cloth disruptive-Colour-1

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

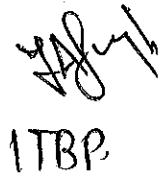
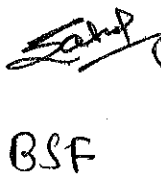
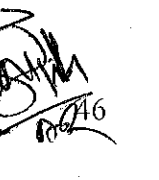
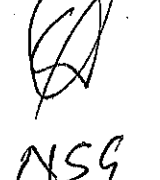
Colour	:		Colour-1						
System	:	CIE LCH							
Illuminant Observer	:	D 65							
Standard Observer	:	10 Degree							
Tristimulus Values	:	<table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>9.273</td><td>9.878</td><td>10.216</td></tr></table>	X	Y	Z	9.273	9.878	10.216	
X	Y	Z							
9.273	9.878	10.216							
L C H	:	<table><tr><td>L</td><td>C</td><td>H</td></tr><tr><td>37.623</td><td>1.364</td><td>122.874</td></tr></table>	L	C	H	37.623	1.364	122.874	
L	C	H							
37.623	1.364	122.874							
CMC (l:c)	:	2:1							
Colour difference, ΔE_{cmc}	:	≤ 3.0							

Interpretation of Results:

- i) If ΔE_{cmc} is less than or equal to 3.0, then sample is acceptable.
- ii) If ΔE_{cmc} is greater than 3.0, 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.

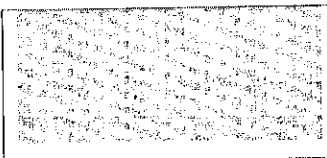
Note-2 : Test should be carried out after proper conditioning as per AATCC 173.

 CIST  ITBP  BSF  NSG  SSB  CRPF

49 47

VIP Security, CRPF

TABLE 8B (Fig.) Specification of colour of Cloth disruptive-Colour-2
(AATCC Test method 173 : 2009 & AATCC Evaluation Procedure 7 : 2009)

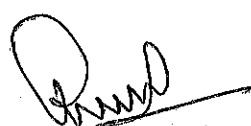
Colour	:		Colour-2						
System	:	CIE LCH							
Illuminant Observer	:	D 65							
Standard Observer	:	10 Degree							
Tristimulus Values	:	<table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>13.127</td><td>14.041</td><td>14.564</td></tr></table>	X	Y	Z	13.127	14.041	14.564	
X	Y	Z							
13.127	14.041	14.564							
L C H	:	<table><tr><td>L</td><td>C</td><td>H</td></tr><tr><td>44.292</td><td>1.679</td><td>134.946</td></tr></table>	L	C	H	44.292	1.679	134.946	
L	C	H							
44.292	1.679	134.946							
CMC (l:c)	:	2:1							
Colour difference, ΔE_{cmc}	:	≤ 3.0							

Interpretation of Results:

- If ΔE_{cmc} is less than or equal to 3.0, then sample is acceptable.
- If ΔE_{cmc} is greater than 3.0, then sample is unacceptable.

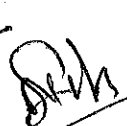
Note-1 : Absorbance/reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between samples of same type i.e., identical fabric construction parameters and filament/ fibre composition.

Note-2 : Test should be carried out after proper conditioning as per AATCC 173.


R. S. Singh

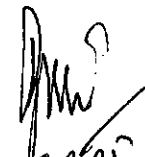

N. B. P.


B. S. F.


N. S. S.


N. S. S.


S. S. B.

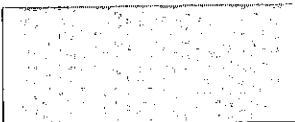

K. S. P.

(50) (48)

VIP Security, CRPF

TABLE 8C (Fig.) Specification of colour of Cloth disruptive-Colour-3

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

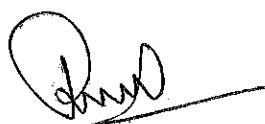
Colour	:		Colour-3						
System	:	CIE LCH							
Illuminant Observer	:	D 65							
Standard Observer	:	10 Degree							
Tristimulus Values	:	<table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>19.156</td><td>20.574</td><td>2.355</td></tr></table>	X	Y	Z	19.156	20.574	2.355	
X	Y	Z							
19.156	20.574	2.355							
L C H	:	<table><tr><td>L</td><td>C</td><td>H</td></tr><tr><td>52.480</td><td>1.810</td><td>195.074</td></tr></table>	L	C	H	52.480	1.810	195.074	
L	C	H							
52.480	1.810	195.074							
CMC (l:c)	:	2:1							
Colour difference, ΔE_{cmc}	:	≤ 3.0							

Interpretation of Results:

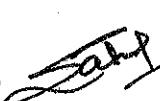
- If ΔE_{cmc} is less than or equal to 3.0, then sample is acceptable.
- If ΔE_{cmc} is greater than 3.0, then sample is unacceptable.

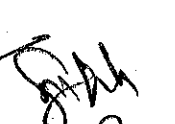
Note-1 : Absorbance/reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between samples of same type i.e., identical fabric construction parameters and filament/ fibre composition.

Note-2 : Test should be carried out after proper conditioning as per AATCC 173.


CBF


ITBP


BSF


NSG


NSG


SSB

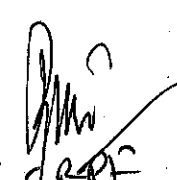
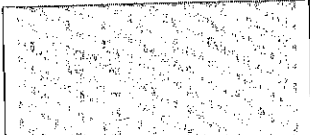

CRPF

TABLE 8 D (Fig.) Specification of colour of Cloth disruptive
(AATCC Test method 173 : 2009 & AATCC Evaluation Procedure 7 : 2009)

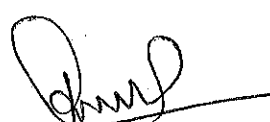
Colour	:		Colour-4						
System	:	CIE LCH							
Illuminant Observer	:	D 65							
Standard Observer	:	10 Degree							
Tristimulus Values	:	<table><tr><td>X</td><td>Y</td><td>Z</td></tr><tr><td>15.951</td><td>17.234</td><td>18.920</td></tr></table>	X	Y	Z	15.951	17.234	18.920	
X	Y	Z							
15.951	17.234	18.920							
L C H	:	<table><tr><td>L</td><td>C</td><td>H</td></tr><tr><td>48.554</td><td>2.347</td><td>200.673</td></tr></table>	L	C	H	48.554	2.347	200.673	
L	C	H							
48.554	2.347	200.673							
CMC (l:c)	:	2:1							
Colour difference, ΔE_{cmc}	:	≤ 3.0							

Interpretation of Results:

- If ΔE_{cmc} is less than or equal to 3.0, then sample is acceptable.
- If ΔE_{cmc} is greater than 3.0, 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.


CSF

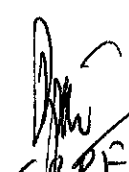

ITBP


BSF


NSG

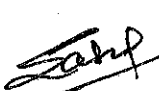
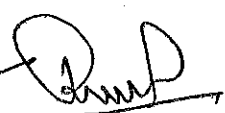

NSG

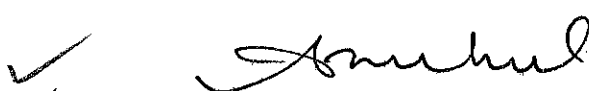

SSB

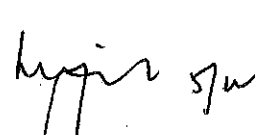

CRPF

Number of T-Shirts to be selected from a lot and permissible number of Non-conforming T-Shirts

No. of the T-Shirt in the lot	Non-destructive Testing		Non-destructive Testing	
	Number of the T-Shirt to be selected	Number of the T-Shirt to be selected	Number of T-Shirts to be selected	Permissible Number of Non-conforming T-Shirts
(1)	(2)	(3)	(4)	(5)
Up to 300	10	1	2	0
301-500	20	1	3	0
501-1000	30	2	5	0
1001-3000	50	3	8	0
3001 and above	80	5	13	1

 **A/Rif**
  **BSF**
  **CISF**
  **CRPF**
  **ITBP**
  **SSB**
  **NSG**


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