<u>Director General CRPF</u> 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)/2022-23-Prov-(Dis/Pattern)-14

Dated, the 4 July 2023

То

The DsG: AR, BSF, CISF, ITBP, NSG, SSB and BPR&D

Subject: <u>QRs/Specifications of "Cloth Disruptive Polyester and Cotton (20:80) with Digital Print" for CRPF.</u>

I am directed to refer on the subject mentioned above and to say that the QRs/Specification in respect of "Cloth Disruptive Polyester and Cotton (20:80) with Digital Print" for CRPF recommended by CAPFs Sub-Group as per Annexure-I has been approved by the competent authority. Henceforth, CRPF field formations will procure the above item required by them, strictly as per the laid down QRs/Specification.

- 2. The earlier revised QRs/Specifications of Cloth Disruptive Polyester and Cotton (20:80) Uniform Cloth <u>approved vide CRPF letter No. U.II-98(Spec)/2019-20-Prov-(Cloth Disruptive)-14 dated 02/02/2023 is rescinded.</u>
- 3. This has the approval of DG, CRPF on 27/06/2023 (empowered vide MHA letter F. No. 11012/02/2009-Fin-I-17 dated 02/01/2018).
- 4. In this regard, refer this Directorate letter of even No. dated 28/06/2023 which was circulated is hereby treated as cancelled.

Encl: As above.

(D.P. Upadhyay) DIG(Prov)

No.U.II-98(Spec)/2022-23-Prov-(Dis/Pattern)-14 Copy forwarded to:-

Dated, the 14 July' 2023

- 1. SO (IT), North Block-with request to upload the approved QRs/Specification of "Cloth Disruptive Polyester and Cotton (20:80) with Digital Print" for CRPF on MHA Website (e-mail ID: soit@nic.in).
- 2. Sh. Paritosh Singhal, ACEO(GeM), Government of India, Ministry of Commerce & Industry, Government e-Marketplace, Jeevan Tara Building, 5-Parliament Street, New Delhi-110001 with request to upload the approved QRs/Specification of "Cloth Disruptive Polyester and Cotton (20:80) with Digital Print" for CRPF on GeM Portal.
- 3. DIG (IT), Dte Genl., CRPF-with request to upload this approved QRs/Specification of "Cloth Disruptive Polyester and Cotton (20:80) with Digital Print" for CRPF on CRPF Portal and Selo Module.
- 4. All Zones/Sectors/GCs/Units HQr for information and necessary action

(D.P. Upadhyay) DIG(Prov)

1.0 SCOPE

- 1.1 The specification prescribes the requirement of "Cloth Disruptive Pattern Digital Print" for CRPF herein referred as "Cloth disruptive"
- 1.2 This specification does not specify the design/ pattern and stitching of uniform from the "Cloth disruptive".
- 1.3 This specification does not specify general appearance; feel etc of the "Cloth disruptive".

2 REFERENCES

The standards listed in Annex A contain provisions, which through reference in this text, constitute provisions of this standard. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

3.0 MANUFACTURE

- 3.1 The Disruptive Pattern cloth shall have 2 up 1 down twill weave. It shall be made from uniform blend of 80% Cotton and 20% Polyester. The selvedges shall be firm and straight. The cloth shall be well singed. The fabric shall be 'Heat set' and fully shrunk. The blend composition of the cloth shall conform to the requirements given in the Table 1.
 - The disruptive pattern may be obtained by repeats of the design of 21 cm±5% in warp direction and 21 cm±5% west direction (see Figure 1). Figure 2 indicates various colours of the disruptive pattern cloths. The pattern shall be printed using dyes having fastness properties as given in Table 1. The various areas of the pattern shall be properly registered in relation to each other and shall present definite sharp demarcations with a minimum of feathering or spew. Each pattern shall show solid coverage. Dyes used in the dyeing and printing shall be free from banned amine (Test method IS 15570).

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- 3.3 The fabric should be supplied in the minimum width of 150 cm. The length of each piece shall be 40 meters or as agreed between supplier and purchaser.
- 3.4 Freedom from Defect: The cloth shall be free from major flaws (defects) which shall not exceed 10 per 100 meters length (see Note). A list of major flaws (defects) is given in Appendix A of IS: 4125. The allowance for providing extra length of cloth in lieu of the flaws (defects) not exceeding the permissible limit may be agreed between the buyer and seller. It shall also be free from dyeing defects such as streaks, stains and uneven dyeing and improper printing in case of printed design etc. The finished cloth shall be free from sizing, filling and dressing materials and substance liable to cause subsequent tendering.

The Disruptive Pattern cloth shall be free from any other defect which may significantly mark the appearance or serviceability.

Note- The number of defects shall be determined on all pieces under test and converted into number of defects per 100 meter length. (See 6.4)

3.5 Cloth should have woven Selvedge on both side of the fabric with manufacturer's name in running length.

4.0 WORKMANSHIP AND FINISH

The "Cloth disruptive" shall be free from workmanship defects i.e. texture, weaving, dyeing flaws etc. The "Cloth disruptive" shall not have missed stitches, hole, cut, oil stains or any other defect which may significantly affect the appearance or serviceability of "Cloth disruptive".

5.0 REQUIREMENTS

5.1 The Disruptive Pattern Uniform cloth shall conform to the requirements given in Table 1. Specification for colour used in printing shall be as given in Table 2A, 2B, 2C and 2D.

Sealed Sample: In order to illustrate or specify the indeterminable characteristics such as general appearance, luster, feel and print design of the Disruptive Pattern cloth, a sample has been agreed

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upon and scaled; the supply shall be conformity with the sample in such respects.

5.3 The custody of the sealed sample shall be a matter of prior agreement between the buyer and seller.

Table 1: Requirements of Cloth disruptive

SI. No.	Characteristics	Requirements	Test Method
1	Approximate count of yarn (For guidance only), Ne - Warp - Weft	2/30 ^s 2/30 ^s	IS 3442:1980
2.	Weave	2 Up 1 down, Right Hand Twill	Visual
	Blend Composition	Cotton-80% ±2 Polyester-20%±2	IS 3416(Pt 1):1988
4	End/dm	420±5%	IS 1963:1981
5	Picks/dm	220±5%	IS 1963:1981
6	Width, cm (Minimum) (including selvedge)	150	IS 1954:1990
7	Mass, gm/m ²	250±5%	IS 1964 : 2001
8	Breaking strength, Newton (Minimum) - Warp-wise - Weft-wise	1100 550	IS 1969: 2018(Part-1) (5 cm X 20 cm between grip)
9	Tearing Strength, Newton (Minimum) - Warp-wise - Weft-wise	25 25	IS 6489 (Part-1) : 2011
10	Colour fastness to washing - Change in colour - Staining on cotton fabric	4 or better 4 or better	IS/ISO 105 C10 C(3): 2006 (Repeated four times)
11	Colour fastness to perspiration - Change in colour - Staining on adjacent fabric	4 or better 4 or better	IS/ISO 105-E04 : 2013

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12	Colour fastness to		IS/ISO 105-x12:2016
	rubbing	colour	
	- Dry	1	
	- Wet	4 or better for	
	- Wet	ground colour,	
		3 or better for	
13	Colour foatmans to link	Print colour	72 /72
13	Colour fastness to light	4 or better	IS/ISO 105-B02 : 2014
14	Dimensional Change	2.0	IC 0077, 1000
	due to relaxation, both	2.0	IS 2977: 1989
	directions, percentage,	8	
	maximum		
15	Dimensional stability	2.0	IS 12170: 1987
	to dry heat (both		(Temperature:
	direction), percentage,		150±2°C)
	maximum		100=2 0)
16	pH value of aqueous	6.0-8.5	IS 1390 : 2022
	extract		
17	Water soluble matter,	1.5	10.2456 2000
	%, Maximum	1.0	IS 3456 : 2022
18	Pilling resistance,	4	IS 10971 : 2022
	Grade, Minimum	,	(Part-1)
	,		(1 41 (-1)
19	Air permeability,	3	IS 11056 : 2013
	cc/sec/cm ² , Minimum		10 11000 . 2013
20			
20	Drape Co efficient, %	60-70	IS: 8357: 1977
21	Water vapour	1400	ASTM E-96,/E 96M-05
	permeability,		(water method), RH:
	g/m²/day, Minimum		50±2 % and
22	Identification of dye	C1	Temperature: (32±2)°C
	racinineation of tye	Ground –	IS 4472 (Part I): 2021
		Disperse and Vat	
23	Colour difference (AE)	Print – Vat class ≤ 3.0	O
40	osour difference (AE)	≥ 0.0	See Tables 2A, 2B, 2C
			and 2D
			(Also see Fig. 2)

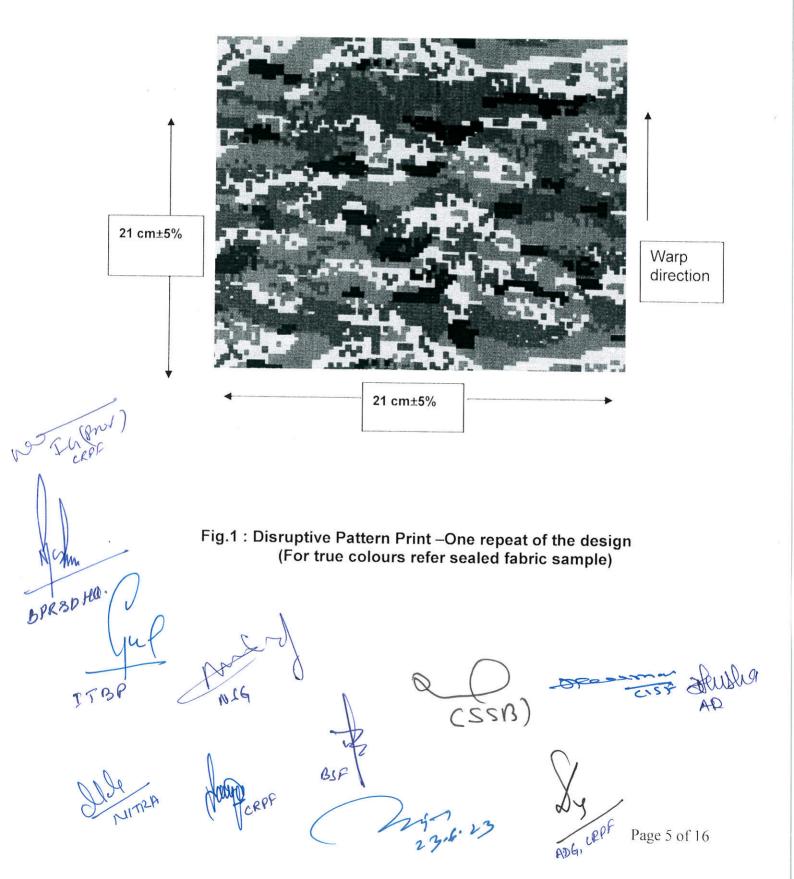
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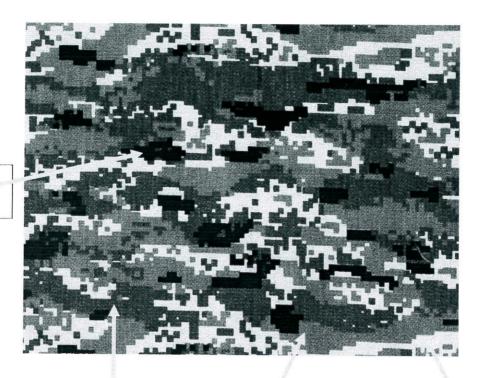
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Black Table 2D

> GREEN TABLE-2A

BROWN TABLE-2B

KHAKI TABLE-2C

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Cloth Disruptive Pattern Print-Colour Specification for CRPF

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Table-2A: 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

X	Y	Z	
5.998	7.164	5.681	

LCH

L C H 32.177 11.595 136.527

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CMC (1:c)

2:1

Colour Difference, Δ E_{cmc}

< 3.0

Interpretation of Results:

If Δ E_{cmc} is less than or equal to 3, then sample is acceptable.

If Δ E_{cmc} is greater than 3, the sample is unacceptable ii)

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/ fiber composition.

Note-2

Test should be carried out after proper conditioning as per AATCC

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Table-2B: 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

X Y Z 9.852 9.778 6.554

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LCH

L C H 37.441 14.206 70.472

CMC (l:c)

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2:1

Colour Difference, ΔE_{cmc}

< 3.0

Interpretation of Results:

i) If Δ E_{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/fiber composition.

Note-2

Test should be carried out after proper conditioning as per AATCC

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Table-2C: 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

LCH

L	C	Н
59.773	12.805	70.293

CMC (1:c)

2:1

Colour Difference, Δ E_{cmc}

< 3.0

Interpretation of Results:

If Δ E_{cmc} is less than or equal to 3, then sample is i) acceptable.

If Δ E_{cmc} is greater than 3, the sample is unacceptable ii)

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/ fiber composition.

Note-2

Test should be carried out after proper conditioning as per AATCC

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Table-2D: Specification of colour Disruptive Pattern-Black

(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
3.041	3.320	3.219

LCH

L	C	Н
21.282	2.816	130.310

CMC (1:c)

2:1

Colour Difference, ΔE_{cmc}

 ≤ 3.0

Interpretation of Results:

If Δ E_{cmc} is less than or equal to 3, then sample is i) acceptable.

If Δ E_{cmc} is greater than 3, the sample is unacceptable ii)

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/ fiber composition.

Note-2

Test should be carried out after proper conditioning as per AATCC

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6.0 SAMPLING AND CRITERIA FOR CONFIRMITY

- 6.1 The number of pieces to be selected at random from a lot for inspection shall be according to col. 1 and 2 of Table 4. To ensure randomness of selection, procedure given is IS: 4905 shall be followed.
- 6.2 The sampling procedure detailed in 6.2 to 6.4 shall give desired protection to the buyer and the seller, provided that the lot submitted for inspection is homogeneous. To achieve this, the manufacturer shall maintain a system of process control at all stages of manufacturing ensuring the Disruptive Pattern cloth tendering by him for inspection to comply with the requirements of this standard in all respects. The tendering authority reserves the right to carry out inspection of bigger lot sizes, even to the extent of 100% inspection, if considered necessary.

NOTE: For effective process control the use of statistical quality control technique is recommended and helpful guidance may be obtained in this respect from 397(Part I): 2003 and IS 397 (Part II): 2003.

- 6.3 Lot: The number of pieces of cloth of same composition and constructional particulars delivered to a buyer against a dispatch note shall constitute a lot.
 - 6.3.1 The conformity of a lot to the requirements of this specification shall be determined on the basis of the tests carried out on the samples selected from the lot.

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6.4 The number of pieces to be tested at criterion for conformity for each of the characteristics shall be as follows (Table 3):

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Table 3: Criterion for conformity

Characteristics	No. of	Samples	Criterion for conformity
i) Visual inspection for freedom from major flaws (defects)	According Table 4	to col 2 of	All the pieces of cloth selected according to col 2 of Table 4 shall be visually examined for major flaws, meter by meter. The Total number of defects observed on sample piece shall be converted into number of defects per 100 meter length. Permissible number of non-conforming pieces not to exceed corresponding number given in col 3 of Table 4.
ii)Construction, Ends, picks, mass, length and width	According Table 4	to col 4 of	All specimens shall satisfy the relevant requirements.
iii) Blend composition, shrinkage, breaking strength, tearing strength, colour fastness, pH etc.	Table 4	to col 5 of	All specimens shall satisfy the relevant requirements.

Note: Sampling officer will select sampling unit randomly and select ultimate items from each sampling unit as per the above table.

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Table 4: Sample size and permissible number of non-conforming Disruptive Printed Uniform Cloth

T		T			
Lot size	Sample	Permissible	Sub-sample	Sub-sub	
(meter)	size	number of non-	size	sample size	
		conforming pieces			
	(2)	(3)	(4)	(5)	
(1)			50 40		
Up to 100	5	0	3	3	
101-150	8	0	3	3	
151-300	13	1	5	3	
301-500	20	1	5	3	
501-1000 32		2	8	5	
1001 and	50	3	13	5	
above					

7.0 MARKING

Each piece of cloth shall be marked with the following:

- Name of the material, namely disruptive pattern cloth-(a) Cotton/polyester blended material;
- Composition, namely, Cotton 80 percent and Polyester 20 (b) percent to be marked on every alternate meter of the cloth at a height not exceeding 2.5 cm from the selvedge;
- (c) Length and width;
- Manufacturer's name, initials or trade-mark; (d)
- Any other information required by the law in force and/or by the (e)

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8.0 PACKAGING & PACKING

The Disruptive Pattern Uniform cloth shall be packed in polyethylene or polypropylene bags and or in box, as required by the buyer (see IS 2194 and IS 2195).

Before dispatch, each box shall be legibly marked by stencil showing the following information:

- i) Nomenclature and Category number of the store
- ii) Quantity packed in the box
- iii) Serial number of the box
- iv) Month & Year of packing
- v) Name/Trademark of the Manufacture
- vi) Gross weight of the box in Kg.
- vii) Name & Address of the consignee
- viii) Inspection note number and date
- ix) Any other information required by the customer

Woven name of firm and date of manufacturing will be mandatory.

Potential vendors must have weaving and processing units under same PAN card.

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ANNEX A (Clause 2) LIST OF REFERRED STANDARDS

Standard number	Title	Standard number	Title
IS:397(Part I)	Method for statistical quality control during production : Part I Control charts for variable	IS:9543	Spun polyester sewing threads
IS:14452	Textiles-Care Labeling code using symbols	IS:10789	Classification and terminology of stitch types used in seams
IS:397(Pt II)	Method for statically quality control during production: Part 2 Control charts for attributes and count of defects	IS:11161	Textiles-seam types- classification and terminology
IS:6359	Method for conditioning of Textiles	IS:1963	Method for determination of thread per unit length in woven fabric
IS:1964	Methods for determination of weight per square meter and weight per linear meter of fabric	IS:971	Method for determination of colour fastness of textile material to perspiration
IS: 1954	Determination of length and width of woven fabric	IS 12673	Methods for determination abrasion resistance

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IS:1969	Method for determination of breaking strength and elongation of woven fabrics	IS:766	Method for determination of colour fastness of textile material to rubbing
IS:2977	Fabrics (other than wool)-Method for determination of dimensional changes on soaking in water	IS 2454	Method for determination of colour fastness of textile material to artificial light (Xenon lamp)
IS 667	Method for identification of textile fibers	IS 1390	Method for determination of pH value of aqueous extract of textile materials
IS 6489	Woven fabrics- Determination if tear resistance by falling pendulum method	IS 3416 (Pt I)	Method for quantitative chemical analysis of binary mixtures of polyester fibers with cotton or regenerated cellulose
AATCC Test method 173	CMC: Calculation of small colour differences for acceptability	IS/ISO 105 C10 C(3)	Method for determination of colour fastness of textile material to washing
AATCC Evaluation Procedure 7	Instrumental assessment of the change in colour of a test specimen		S

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Approved/Not Approved

(Dr. Sujoy Lal Thaosen) Director General, CRPF Page 16 of 16 No. U.II-98(Spec)/2022-23-Prov-(Dis/Pattern)-14 Government of India, Ministry of Home Affairs Directorate General, Central Reserve Police Force (Tele/Fax No. 011-24360155) (E-mail:digprov@crpf.gov.in)

> Block No.1, CGO Complex, Lodhi Road, new Delhi-110003 Dated, the Sept' 2023

Subject: Corrigendum to QRs/Specification of "Cloth Disruptive Polyester and Cotton (20:80) with Digital Print" for CRPF.

Please refer this Directorate's letter number U.II-98(Spec)/2022-23-Prov-(Dis/Pattern)-14 dated 04/07/2023, vide which QRs/Specifications of "Cloth Disruptive Polyester and Cotton (20:80) with Digital Print" for CRPF duly approved by the competent authority was forwarded to your office as well as for uploading on the websites of MHA and GeM portal.

2. Corrigendum to colour value to Table -2A, 2B, 2C & 2D is as under:-

		FOR			READ	
Table -2A		Specific	ation of col	our Disruptive Pa	ttern- Green	
Tristimulus	X	Y	Z	X	Y	Z
Values	5.998	7.164	5.681	4.860	5.563	4.540
LCH	L	С	Н	L	C	Н
	32.177	11.595	136.527	28.28	3 8 400	127 577

Table -2B	Specification of colour Disruptive Pattern- Brown					
Tristimulus	X	Y	Z	X	Y	Z
Values	9.852	9.778	6.554	9.306	9.039	6.422
LCH	L	С	Н	L	C	< H
	37.441	14.206	70.472	36.060	13.122	61.441

Table -2C	Specification of colour Disruptive Pattern- Khaki					
Tristimulus	X	Y	Z	X	Y	Z
Values	27.478	27.872	22.381	30.582	30.673	24.273
LCH	L	C	Н	L	С	Н
	59.773	12.805	70.293	62.231	14.229	66.174

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Contd. P/2.

Table -2D	Specification of colour Disruptive Pattern- Black					
Tristimulus	X	Y	Z	X	Y	Z
Values	3.041	3.320	3.219	3.014	3.178	3.151
LCH	L	C	Н	L	С	Н
	21.282	2.816	130.310	20.744	1.649	88.991

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(D.P. Upadhyay) DIG(Prov)

No.U.II-98(Spec)/2022-23-Prov-(Dis/Pattern)-14 Copy forwarded to:-

Dated, the O Sept' 2023

- 1. The DsG: AR, BSF, CISF, ITBP, NSG, SSB and BPR&D.
- 2. SO (IT), North Block-with request to upload the approved QRs/Specification of "Cloth Disruptive Polyester and Cotton (20:80) with Digital Print" for CRPF on MHA Website (e-mail ID: soit@nic.in).
- 3. **Shri Anoop Dhanvijay**, Director- Buyer Management (CPSEs & Central Ministries), Government of India, Ministry of Commerce & Industry, Government e-Marketplace, Jeevan Tara Building, 5-Parliament Street, New Delhi-110001 with request to upload the approved QRs/Specification of "Cloth Disruptive Polyester and Cotton (20:80) with Digital Print" for CRPF vide this Directorate letter of even number dated 04/07/2023 along with these corrigendum and to post it in Q2 category on GeM Portal.
- 4. DIG (IT), Dte Genl., CRPF-with request to upload this approved QRs/Specification of "Cloth Disruptive Polyester and Cotton (20:80) with Digital Print" for CRPF on CRPF Portal and Selo Module.

5. All Zones/Sectors/GCs/Units HQr for information and necessary action. (Encl-Complete QRs/Spec with parameters as per corrigendum)

(D.P. Upadhyay)

DIG(Prov)