

**QUALITATIVE REQUIREMENTS (QRS)/ SPECIFICATION OF
MAHILA POLYCARBONATE LATHI**

S. no.	Name	QR Specifications	Trial Directives
1.	Nomenclature	Mahila Polycarbonate Lathi	
2.	Uses	1) Mahila PC Lathi shall be used by Mahila troops during their deployment. It is self defence equipment for troops during their deployments in Riots or Riot like situations. 2) PC Lathi for Mahila troops required to be light weight and made of good quality material. It should have the resistance, flexible and easy to carry.	
3.	Colour	Should be Black	To be check by BOO/Line Committee
4.	Weight	Less than 300gm	
5.	Carriage	Hand Held / Integrated into polycarbonate shield	
6.	Shelf life	06 years (polycarbonate part minimum) Operational Life of LED: Approx 24hrs upon charging once Life of Continuous Spark:30minutes(minimum) Life of Battery: Minimum 1000charging cycles	
7.	Shape	Cylindrical shape.	
8.	Dimensions	Diameter	Inner :19mm Outer:25mm
		Length	900 mm with tolerance + 15 mm and -10mm including handgrip and shoe.
		Wall thickness	3mm

[Signature]
MAHEWDER SINGH
BSC DC

[Signature]
Shreesh Kala, Ac
SSB

[Signature]
Rajwesh Kumar
BPRD, Psdw

[Signature]
Vivek Vaid
IGP, RAF
Chairman

[Signature]
VIKRAM J.C.
NSG

[Signature]
MEENAL PASHI
BIS

[Signature]
Shyam Dwivedi
BS

[Signature]
Chandra Shekhar
IT.B.P. DC/GD

[Signature]
R. S. BISUI
Ac/CISF

[Signature]
D P Mishra
NBISUB LOAR

[Signature]
Dr. Shanthi Ranat
SC/F/ DIPAS

[Signature]
P. L. R. VARTI
SC/E
DIPAS, DRSD

9.	Materials of construction	1) The main body of polycarbonate lathi shall be made of high impact resistant/ natural polycarbonate material. It may contain additives, processing aids and stabilizers (for example UV absorbers). 2. The material used for manufacture of polycarbonate sheet shall comply with the requirements as per column-3 when tested as per the prescribed IS of Column – 4	Certification from any NABL accredited Lab for the test conducted as per IS specified at column-4 with results as per values shown in column-3 (a), (b), (c), (d) & (e) of the table at SI No 8.																								
		<table><tr><th>Sl. No.</th><th>Characteristics</th><th>Requirement</th><th>Method of test, Ref to IS/Annx</th></tr><tr><td>(a)</td><td>Melt Flow Index, gram/10 min. (at 300° C under 1.2 Kg load when measured after pre-drying of the material at 120 ± 5°C upto 4 hrs.)</td><td>i)1.5 to 8 (for extrusion/ Thermoforming) ii)8 to 15 (for injection moulding)</td><td>IS 13360 (Part 4 / Sec 1)</td></tr><tr><td>(b)</td><td>Specific Gravity</td><td>1.19 to 1.22</td><td>IS 13360 (Part 3 Section 1)</td></tr><tr><td>(c)</td><td>Flexural Modulus, Min, Mpa (With crosshead speed of 1.2 mm/min and a span to depth ratio of 16 to 1 (test specimen size, 04 mm x 10 mm)</td><td>2200</td><td>IS 13360 (Part 5 Section 7)</td></tr><tr><td>(d)</td><td>Izod Impact Strength , notched , min, kJ/m² (test specimen thickness of 03 mm and notch radius of 0.25 mm)</td><td>60</td><td>IS 13360 (Part 5 Section 4)</td></tr><tr><td>(e)</td><td>Deflection Temperature under load at 1.82 MPa, Min, °C</td><td>120</td><td>IS 13360 (Part 6 Section 17)</td></tr></table>	Sl. No.	Characteristics	Requirement	Method of test, Ref to IS/Annx	(a)	Melt Flow Index , gram/10 min. (at 300° C under 1.2 Kg load when measured after pre-drying of the material at 120 ± 5°C upto 4 hrs.)	i)1.5 to 8 (for extrusion/ Thermoforming) ii)8 to 15 (for injection moulding)	IS 13360 (Part 4 / Sec 1)	(b)	Specific Gravity	1.19 to 1.22	IS 13360 (Part 3 Section 1)	(c)	Flexural Modulus , Min, Mpa (With crosshead speed of 1.2 mm/min and a span to depth ratio of 16 to 1 (test specimen size, 04 mm x 10 mm)	2200	IS 13360 (Part 5 Section 7)	(d)	Izod Impact Strength , notched , min, kJ/m ² (test specimen thickness of 03 mm and notch radius of 0.25 mm)	60	IS 13360 (Part 5 Section 4)	(e)	Deflection Temperature under load at 1.82 MPa, Min, °C	120	IS 13360 (Part 6 Section 17)	
Sl. No.	Characteristics	Requirement	Method of test, Ref to IS/Annx																								
(a)	Melt Flow Index , gram/10 min. (at 300° C under 1.2 Kg load when measured after pre-drying of the material at 120 ± 5°C upto 4 hrs.)	i)1.5 to 8 (for extrusion/ Thermoforming) ii)8 to 15 (for injection moulding)	IS 13360 (Part 4 / Sec 1)																								
(b)	Specific Gravity	1.19 to 1.22	IS 13360 (Part 3 Section 1)																								
(c)	Flexural Modulus , Min, Mpa (With crosshead speed of 1.2 mm/min and a span to depth ratio of 16 to 1 (test specimen size, 04 mm x 10 mm)	2200	IS 13360 (Part 5 Section 7)																								
(d)	Izod Impact Strength , notched , min, kJ/m ² (test specimen thickness of 03 mm and notch radius of 0.25 mm)	60	IS 13360 (Part 5 Section 4)																								
(e)	Deflection Temperature under load at 1.82 MPa, Min, °C	120	IS 13360 (Part 6 Section 17)																								

MAHENDRA SINGH
BIS DC

VIKRAM, TC
NISG

R. S. P. S. R.
Ad. C. S. R.

Shreesh Kala, AC
SSB

MEENAL PARI
BIS

B. D. Mishra
NBSB LOAR

Shivam Dwivedi
BIS

Dr. Shwetank
SCIF DIPAS

Vivek Vaid
IGP, RAF
Chairman
Chandag Shekhar
IT.B.P. DC/GO

Dr. L. K. VARTI
SCIF
DIPAS, DRDO

10.	Polycarbonates sheet characteristics	1) Polycarbonate sheet formed from the above specified material shall comply with the requirements as per column-3 when tested as per the prescribed IS of Column-4 in the table below:- <table border="1"> <thead> <tr> <th>Sl. No.</th><th>Characteristics</th><th>Requirement</th><th>Method of test, Ref to IS/Annx</th></tr> <tr> <th>(1)</th><th>(2)</th><th>(3)</th><th>(4)</th></tr> </thead> <tbody> <tr> <td>(a)</td><td>Dart drop Impact, Minimum J (at 27degree C)</td><td>150</td><td>Annx B of IS 14443</td></tr> <tr> <td>(b)</td><td>Light Transmission, percent, Minimum</td><td>83</td><td>IS 13360 (Part -9 Section - 5)</td></tr> <tr> <td>(c)</td><td>Flammability Test (test specimen thickness 3.18 mm $\pm$ 0.13 mm)</td><td>94 HB class</td><td>IS 13360 (Part - 6 Section - 5)</td></tr> </tbody> </table>	Sl. No.	Characteristics	Requirement	Method of test, Ref to IS/Annx	(1)	(2)	(3)	(4)	(a)	Dart drop Impact, Minimum J (at 27degree C)	150	Annx B of IS 14443	(b)	Light Transmission, percent, Minimum	83	IS 13360 (Part -9 Section - 5)	(c)	Flammability Test (test specimen thickness 3.18 mm $\pm$ 0.13 mm)	94 HB class	IS 13360 (Part - 6 Section - 5)	
Sl. No.	Characteristics	Requirement	Method of test, Ref to IS/Annx																				
(1)	(2)	(3)	(4)																				
(a)	Dart drop Impact, Minimum J (at 27degree C)	150	Annx B of IS 14443																				
(b)	Light Transmission, percent, Minimum	83	IS 13360 (Part -9 Section - 5)																				
(c)	Flammability Test (test specimen thickness 3.18 mm $\pm$ 0.13 mm)	94 HB class	IS 13360 (Part - 6 Section - 5)																				
11.	(a) Protective Shoe/Stud specifications (b) Handgrip (c) Wrist band	(i) Length 25mm $\pm$ 5mm. Ring shape, (ii) Properly fixed with lathi, firm, fire and water resistant. (iii) Made of Polymeric/Fiber or Rubber. (iv) Water should not be able to enter from bottom side., when used in zones with water clogging, puddles, etc (i) Length 14cm $\pm$ 10 mm. (i) A wrist band made of cotton/ nylon shall be providing on the top of handgrip for providing security from lathi snatching. (ii) Length- loop diameter should be 6 to 8 inch	1) To be check by BOO/ Line committee 2) Certificate from any NABL accredited lab for fire/Water resistant of hand grip and protective shoe																				

[Signature]
MAHENDER
BIS, DC, BSN

[Signature]
VIKRAM T.C
BIS

[Signature]
R.S. RAISHA
Act/CSF

[Signature]
11/09/22
Shreesh Kala, AC
SSB

[Signature]
MEENAL PASSI
BIS

[Signature]
D P MISHRA
No/sub L&A

[Signature]
Dr. Ramesh Kumar
PSO(W) BPRD
BIS

[Signature]
Dr. Shweta Ranat
SC'F' DIPAS

[Signature]
Vivek Vaid
IGP, RAF
Chairman
Chandra Chelgar
ITBP, DC/GO

[Signature]
Dr. L.R. VARTE
SC'F'
DIPAS, DRDO

12.	Performance requirements of Mahila PC Lathi	(a)Resistance to Environmental Stress Cracking:- Environment Stress Cracking Resistance (ESCR) test shall be performed on polycarbonate body of the Lathi (with Protective coating) by constant strain method as per IS 1336(Part 8/Sec 9).	Certificate from any NABL accredited Lab
		(c)Resistance to Surface Abrasion:- The resistance of Polycarbonate lathi to surface abrasion shall be tested in accordance with ASTM D 1044 for 100 cycles under 500g load. Haze of test specimen shall not be more than 20 percent.	

As specified in the figure, the Mahila Polycarbonate Lathi has some added features by means of its electrical components, providing better deterrence against violent mob.

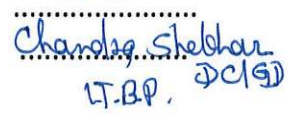
The Lathi comes well equipped with features meant to deterr and discourage the mob and mischief mongers, with its electrical discharge making a buzzing noise , threatening the approachers around. Also it contains a charged source (battery) that comes with inbuilt charger for easy recharging.

The details of the same are as follows:

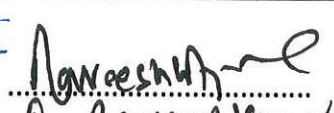
SPECIFICATIONS FOR ELECTRICAL COMPONENTS

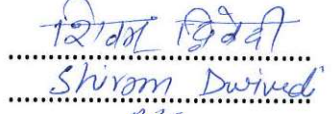
1. Power Supply	3.7 Volts 3000 mAh, Lithium ion rechargeable Cell
2. Resistance Wires Glass Sleeves Output Wire Push Buttons	100 Ohms (2 Nos.) 0.5 sq mm multi strand copper core flexible insulated 3 Types with different ID 1.0 mm, (19 G) super enamelled Copper 12 * 12 * 10 MM
3. Operational Life of LED Life of Continuous Spark Life of Battery	APPROX. 24 HRS. CONTINUOUS 30 Minutes (Minimum) Minimum 1000 charging cycles.
4. Hand Grip, Wire Separator & Bottom Shoe Material	Through Injection Moulds Polycarbonate (Virgin)
5. Baton Material	POLYCARBONATE PIPE
6. Sizes: As Per Drawings Enclosed	Attached


 Vivek Vaid
 IGP, RAF
 Chairman


 Chandan Shekhar
 LT-BP, DCISD

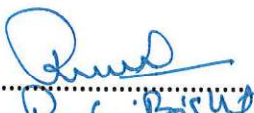

 Dr. Shweta Ranot
 C I F DIPAS

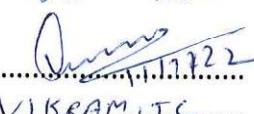

 Dr. Rakesh Kumar
 PSO(W). BPRD

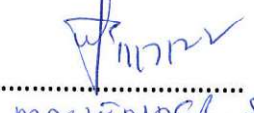

 Shweta
 B/S


 Shreesh Kala, AC
 SSB

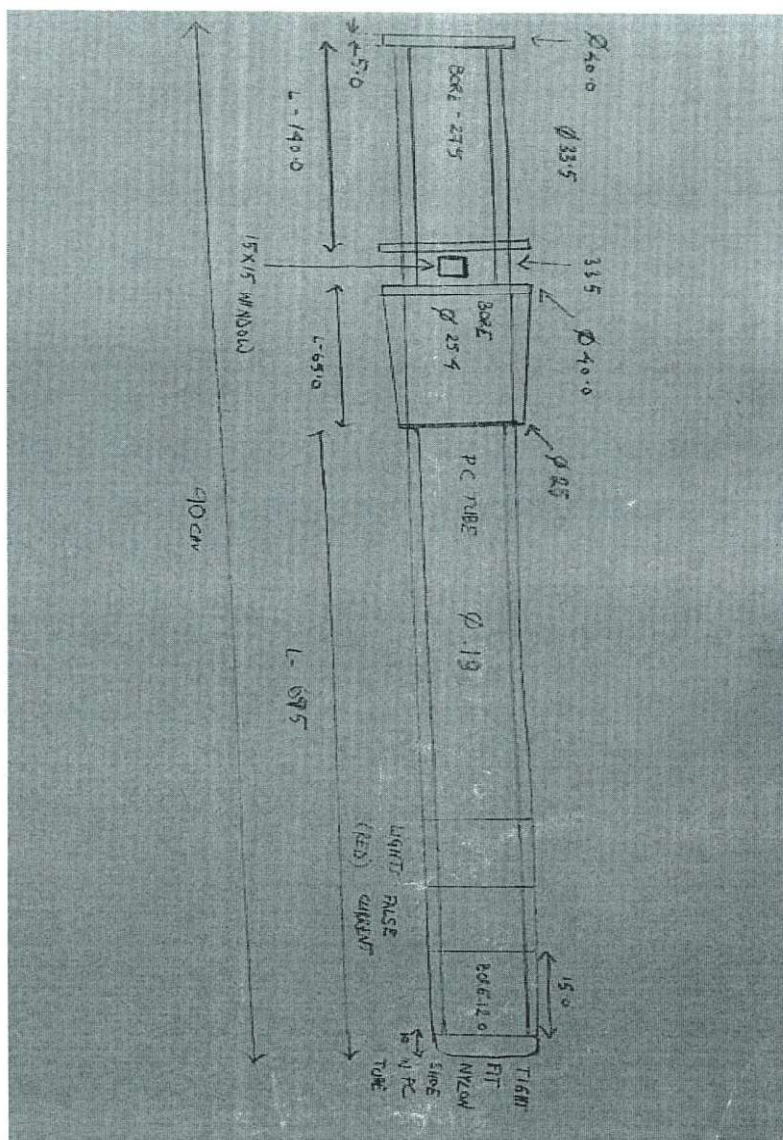

 MEENAL PASSI
 B/S


 R. S. Baisak
 AC/IST


 VIKRAM, ITC
 NISG


 MOHENDER SINGH
 DC BSC

DIPAS MAHILA POLYCARBONATE LATHI



[Signature]
11/5/22

MOHAMED SINGH
DC BSR

[Signature]
11/5/22

VIKRAM JET
11/5/22

[Signature]
R. S. BISHU
AC/CISF

[Signature]
11/09/22

Shreshth Kalia, AC
SSB

[Signature]

MEENAL PASTI
BIS

[Signature]
D. P. MISHRA
NB/SCB IDAR

[Signature]
Dr. Rakesh Kumar
PSO (W), BPR&D

[Signature]

Shivam Dwivedi
BIS

[Signature]
Dr. Shweta Ranat
SC 'F' DIPAS

[Signature]
Vivek Vaid
IGP, RAF
Chairman

[Signature]

Chandana Sheldhan
DC/IGD
LT B.P.

[Signature]

Dr. L. R. VIKATE
SC 'E'
DIPAS, DRD