

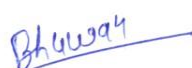

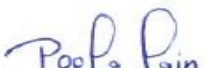


## TEST REPORT

		Format No. :VTL/FR/23	
Discipline:	Photometry	Group:	Luminaries
Location of testing performance of the Laboratory &its Address:		Vardhamana Testing Laboratory Plot No 403, Udyog Kendra Extn –II Ecotech -3, Greater Noida	
Test Specification:		As per IES LM 79-08	
Report No.:	VTL/TR/2023/12/054	Issue Date:	19/12/2023
ULR No. :	TC-11240230000725253F	Page No.:	1 of 6
Name & Address of Manufacturer:		MEROWN ELECTRIC PRIVATE LIMITED C-104, Sector 65,Noida, Gautam buddha Nagar, Uttar Pradesh, 201301	
Name & Address of Applicants:		MEROWN ELECTRIC PRIVATE LIMITED C-104, Sector 65,Noida, Gautam Buddha Nagar, Uttar Pradesh, 201301	
<b>PART A. PARTICULARS OF SAMPLE SUBMITTED BY CUSTOMER</b>			
a) Sample Name:	30W Solar Street Light		
b) Sample Description (Rating/ Class/Type etc.)	Ratted Voltage : 12VDC, Ratted Power :30W,		
c) Model Number:	MESL30/24		
d) Brand Name:			
e) Quantity of Sample:	01	 SCAN QR CODE TO VERIFY REPORT	
f) Date of Receipt of Sample:	11/12/2023		
g) Date of performance of testing:	16/12/2023		
h) Condition of sample received:	Good		
i) Environmental Conditions:	25±1°C/ 58% RH		
j)Code No./ Sr. No. / Batch No. / Date ofManufacturer/ Seal & IO's sign, if any	--		
l)Any Other Information, If Any:	Nil		
<b>PART B: SUPPLEMENTARY INFORMATIONS</b>			
a) Reference to sampling procedure, wherever applicable	N/A		
b) Supporting documents for the measurements taken and results derived like graphs, tables, sketches and /or photographs, as appropriate to test report, if any (To be attached ):	See Attachment No. 1		
c) Deviation from the test methods as prescribed in relevant ISS/ work instructions,	N/A		



Tested By:	Approved By (Authorized Signatory):	Issued By:
		
Bhuwan Verma (Testing Engineer)	R.K. Srivastava(Technical Manager)	Pooja Jain (Lab Head)



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## TEST REPORT

Test Report No. VTL/TR/2023/12/054

ULR No. TC-11240230000725253F

DISCIPLINE : Photometry

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Issue Date 19/12/2023

GROUP: luminaries

### Test Conducted :

Sl. No.	CL. no.	Tests with Clause No.	Parameter	Observation
1.		Electrical Parameter		
a.	8	(LM-79-08)	Input Voltage (V)	12.00VDC
b.			Input Current(I)	2.5633A
c.			power(W)	30.76W
d.			Power Factor	1.000
e.			Frequency (Hz)	DC
2.a)	9	Photometric Parameter ( LM 79-08 )	Luminous Flux	1500.23 lm
b.	10		Luminous Intensity Distribution	Graph attached
c	11		Luminaire Efficacy	127.55 lm/W
3.	12	Color Characteristics ( LM 79-08 )	Chromaticity -Coordinate	
a.			X- Coordinate	0.3116
			Y-Coordinate	0.3274
b.			Correlated Color Temperature	6579 K
c.			Render Index	84.7



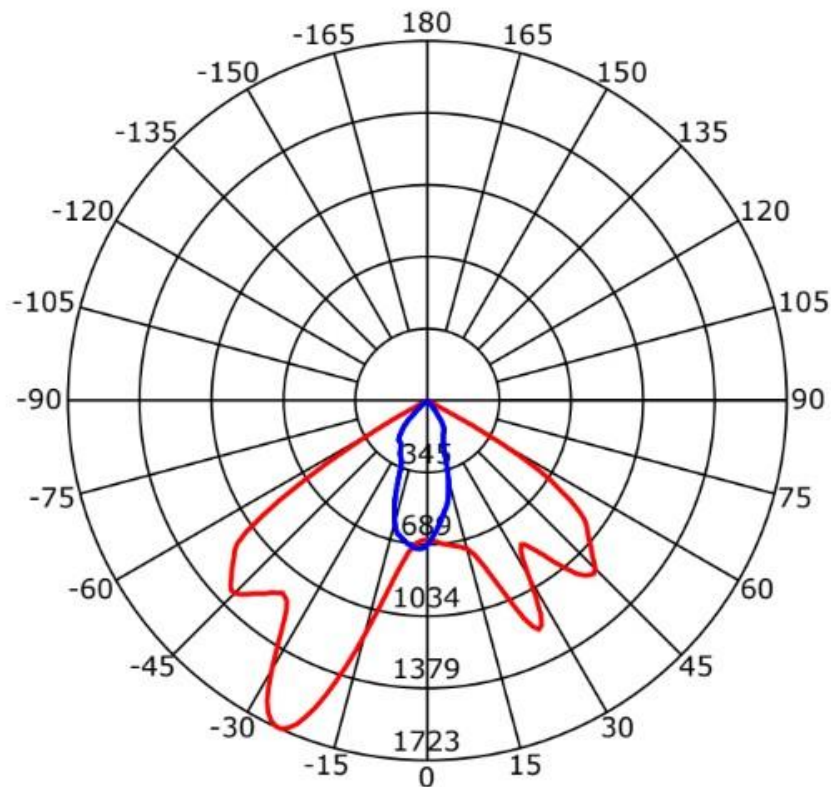
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GROUP: luminaries

Luminous Intensity Distribution Curve



Beam Angle(50%) C0-180,C90-270: 110.6 deg,37.3 deg

C0-180 ——— C90-270 ———



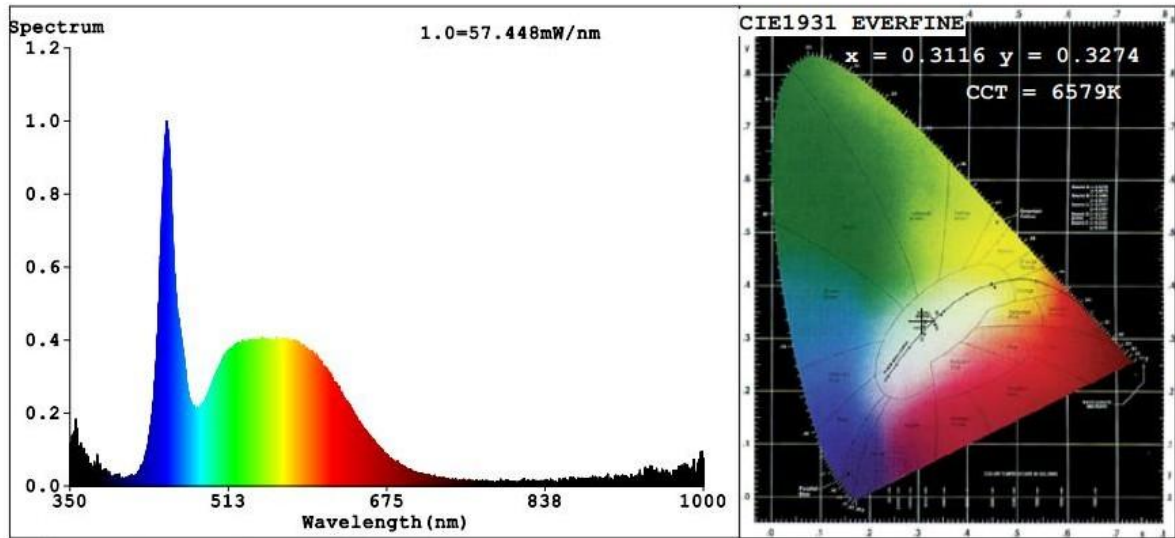
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Issue Date 19/12/2023  
GROUP: luminaries

### Spectrum Test Report



#### Color Parameters:

Chromaticity Coordinate:  $x=0.3116$   $y=0.3274$  /  $u'=0.1976$   $v'=0.4673$   
CCT=6579K (Duv=0.0029) Dominant WL:Ld =488.2nm WL:Lc = --nm Purity=7.8%  
Ratio:R=13.6% G=80.7% B=5.7% ; Peak WL:Lp=449.1nm FWHM=18.2nm  
Render Index:Ra=84.7 AvgR=77.9

R1 =83    R2 =88    R3 =91    R4 =85    R5 =84    R6 =83    R7 =89  
R8 =73    R9 =15    R10=72    R11=85    R12=60    R13=85    R14=95    R15=79



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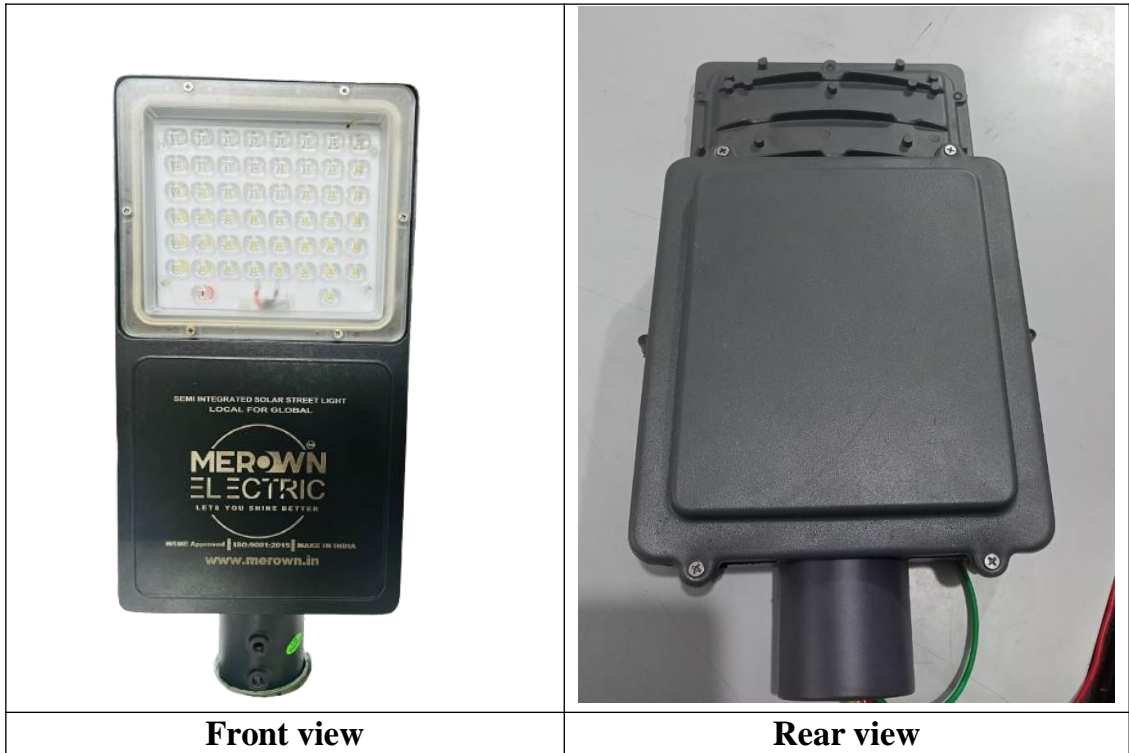
## TEST REPORT



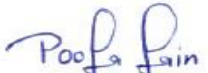
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Page 5 of 6  
Issue Date 19/12/2023  
GROUP: luminaries

### Sample photo

### Attachment 1



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ULR No. TC-11240230000725253F  
DISCIPLINE : Photometry

Page 6 of 6  
Issue Date 19/12/2023  
GROUP: luminaries

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3. The results reported in the report are valid at the time of and under the stated conditions of measurement.
4. VTL is not giving any decision rule. Only statement of conformity is given as per standard if applicable and required by the customer.

**END OF TEST REPORT**



Tested By:	Approved By (Authorized Signatory):	Issued By:
Bhuwan Verma (Testing Engineer)	R.K. Srivastava (Technical Manager)	Pooja Jain (Lab Head)

## TEST REPORT

			Format No. : VTL/FR/19
Discipline:	--	Group:	Electrical
Location of testing performance of the Laboratory & its Address:		Vardhamana Testing Laboratory Plot No 403, Udyog Kendra Extn -II Ecotech -3, Greater Noida	
Test Specification:		As per customer specification	
Report No. :	VTL/TRN/2023/12/010	Issue Date :	19-12-2023
		Page No. :	1 of 6
Name & Address of Manufacturer :		MEROWN ELECTRIC PRIVATE LIMITED G 312, Model Craft, Sector 63,Noida, Gautambuddha Nagar, Uttar Pradesh, 201301	
Name & Address of Applicants :		MEROWN ELECTRIC PRIVATE LIMITED G 312, Model Craft, Sector 63,Noida, Gautambuddha Nagar, Uttar Pradesh, 201301	
<b>PART A. PARTICULARS OF SAMPLE SUBMITTED BY CUSTOMER</b>			
a )Sample Name:		30 Watt solar street light system	
b) Sample Description (Rating/ Class/Type etc.)		12 VDC / 30W	
c) Model Number:		MESL-30/24	
d) Brand Name:		MEROWN ELECTRIC PRIVATE LIMITED	
e) Quantity of Sample:		PV Solar Module 1 No., Battery No. 1, Solar LED Light No.1	
f)Date of Receipt of Sample:		11.12.2023	
g) Date of performance of testing:		11.12.2023 to 18.12.2023	
i) Condition of sample received :		Good	
j)Environmental Conditions :		24°C/52% RH	
k) Code No. / Sr. No. / Batch No. / Date of Manufacturer/ Seal & IO's sign , if any		-	
l) Any Other Information , If Any:		Nil	
<b>PART B: SUPPLEMENTARY INFORMATIONS</b>			
a)Reference to sampling procedure , wherever applicable			N/A
b) Supporting documents for the measurements taken and results derived like graphs, tables, sketches and /or photographs , as appropriate to test report , if any (To be attached ):			See Attachment 1
c) Deviation from the test methods as prescribed in relevant ISS/ work instructions,			N/A



<b>Tested By:</b>	<b>Approved By (Authorized Signatory):</b>	<b>Issued By:</b>
		
Bhuwan Verma (Testing Engineer)	R.K. Srivastava(Technical Manager)	Pooja Jain (Lab Head)



**VARDHAMANA**  
TESTING LABORATORY

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## TEST REPORT

Test Report No. VTL/TRN/2023/12/010

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Issue Date.19-12-2023

Sr.No	Description	Specification	Observation	Remark
1.	<b>Solar Panel (PV module)</b> a) Name of Manufacturer b) Model c) Serial No d) Year Of make I. Module wattage II. Type of module III. Module efficiency IV RFID	Should be Provided Should be Provided Should be Provided Should be Provided 75 Wp Solar photovoltaic PV module 15.5 % Should be Provided	INA SOLAR Pvt. Ltd IB361275 Ib7512174233 12-2023 75.10Wp Solar photovoltaic PV module 15.61 % Provided	Complies BIS No . R-93017612
2.	<b>Battery</b> 1. Type of Battery 2. Make 3. Model 4. Voltage 5. Date of Mfg 6. Capacity	LITHIUM PO4 provided provided provided provided 24 Ah	LiFePO4 MEROWN ELECTRIC PRIVATE LIMITED MES30P 12.8 V Dec-2023 26.16Ah	REPORT No. VTL/TR/2023 /12/056
3.	<b>Solar Street Light</b> <b>For Brand : MEROWN ELECTRIC PRIVATE LIMITED</b> i. Make and Origin of LED ii. Photometry and color Parameter a) Total Luminous Flux b) Luminous efficacy c) Color temperature d) Color Rendering Index (CRI)	Should be provided Should be provided $\geq 1500$ lm $\geq 130$ lm/W Between 5500K to 6500K $\geq 70$	Osram  1500.23 132.57 6579k 84.7	Complies REPORT No. VTL/TR/2023/12/054



<b>Tested By:</b> 	<b>Approved By (Authorized Signatory):</b> 	<b>Issued By:</b> 
<b>Bhuwan Verma (Testing Engineer)</b>	<b>R.K Srivastava(Technical Manager)</b>	<b>Pooja Jain (Lab Head)</b>



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## TEST REPORT

Test Report No. VTL/TRN/2023/12/010

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Issue Date.19-12-2023

	<p>iii. Light Output (in lux) from 4 meter height below light</p> <p>iv . After 4hrs 50% dimming</p> <p>iv. Temperature difference between Heat Sink and ambient temperature during the dusk to dawn operation (°C)</p> <p>v.Housing including optics for focusing light</p>	<p>&gt;24 lux</p> <p>&gt;12 lux</p> <p>≤ 20°C</p> <p>Should have proper housing and optics for uniform intensity</p>	<table border="1"> <tr> <td>Higher illumination</td> <td>Lower illumination</td> </tr> <tr> <td>27.6</td> <td>13lux</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </table> <p>Complies</p> <p>Provided</p>	Higher illumination	Lower illumination	27.6	13lux					
Higher illumination	Lower illumination											
27.6	13lux											
<b>4.</b>	<b>Electronic DC-DC convertor</b>											
	<p>I. Parameter at 12.8 V</p> <p>a) Input Power (W)</p> <p>b) Output power (W)</p> <p>c) Efficiency (%)</p> <p>II. Variation in output current with input voltage</p> <p>III. PCB installation</p>	<p>30 Watt</p> <p>--</p> <p>Min. 90%</p> <p>No Variation in output current with input voltage</p> <p>Solder free</p>	<p>29.76 W</p> <p>27.85W</p> <p>92.3 %</p> <p>No Variation</p> <p>Solder Free</p>	Complies								
<b>5.</b>	<b>Protections</b>											
	<p>I. Charge controller type</p> <p>II. No. Load Protection</p>	<p>MPPT</p> <p>Should be Provided</p>	<p>Provided</p> <p>Provided</p>	Complies								



**Tested By:**

**Approved By (Authorized Signatory):**

**Issued By:**

*Bhuwan Verma*

*R.K. Srivastava*

*Pooja Jain*

**Bhuwan Verma (Testing Engineer)**

**R.K Srivastava(Technical Manager)**

**Pooja Jain (Lab Head)**

## TEST REPORT

Test Report No. VTL/TRN/2023/12/010

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Issue Date.19-12-2023

	III. Battery reverse polarity protection	Should be Provided	Provided	
	IV. Protection for reverse flow of current through PV module	should be Provided	Provided	
	V. Load Short Circuit protection	Should be Provided	Provided	
	VI. Overall MPPT efficiency	≥90 %	91.60 %	
<b>6.</b>	<b>Other Features</b>			
	I. Dusk to dawn	should be Provided	Provided	Complies
	II. Indicator	Two Indicators Should be provided (Green- Charging and red Load cut off)	Provided	
	III. Dimming after 4 hrs	50%	Provided	



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Page 5 of 6

Issue Date.19-12-2023

Sample Photo :

Attachement 1



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END OF REPORT



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## TEST REPORT

-			Format No. :VTL/FR/19
Discipline:	Electrical	Group:	Cells & batteries
Location of testing performance of the Laboratory & its Address:		Vardhamana Testing Laboratory Plot No 403, Udyog Kendra Extn –II Ecotech -3, Greater Noida	
Test Specification:		As per IS 16047:2018	
Report No. :	VTL/TR/2023/12/056	Issue Date :	19/12/2023
ULR No. :	TC112402300001856F	Page No. :	1 of 4
Name & Address of Manufacturer:		MEROWN ELECTRIC PRIVATE LIMITED	
Name & Address of Applicants :		MEROWN ELECTRIC PRIVATE LIMITED C-104, Sector 65,Noida, Gautambuddha Nagar, Uttar Pradesh, 201301	
<b>PART A. PARTICULARS OF SAMPLE SUBMITTED BY CUSTOMER</b>			
a)Sample Name:		LithiumPO4 Battery 12V , 24Ah	
b) Sample Description (Rating/ Class/Type etc.)		12V / 24Ah	
c) Model Number:		MESL30P	
d) Brand Name:		MEROWN ELECTRIC	
e) Quantity of Sample:		01	
f)Date of Receipt of Sample:		11/12/2023	
g) Date of performance of testing:		11/12/2023 – 14/12/2023	
h) Condition of sample received :		Good	
i)Environmental Conditions :		25°C/57% RH	
j)Code No./ Sr. No. / Batch No. / Date of Manufacturer/ Seal & IO's sign , if any		--	
k)Any Other Information , If Any:		--	
<b>PART B: SUPPLEMENTARY INFORMATIONS</b>			
a)Reference to sampling procedure , wherever applicable			N/A
b) Supporting documents for the measurements taken and results derived like graphs, tables, sketches and /or photographs , as appropriate to test report , if any (To be attached ):			N/A
c) Deviation from the test methods as prescribed in relevant ISS/ work instructions,			N/A



SCAN QR CODE TO  
VERIFY REPORT



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ULR No.: TC112402300001856F

DISCIPLINE : Electrical

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Issue Date: 19/12/2023

GROUP : Cells & batteries

### Tests Conducted:

Sl. No.	Test Parameter	Test Standard with Cl. No.	Test Condition	Observations / Results	Remarks
5	Discharge Performance at 20°C	7.3.1 IS 16047:2018	After fully charged battery the battery shall be discharge at a constant current of 0.2 I <sub>t</sub> A , Until its voltage is equal to End of discharge voltage , 5 cycles of charging and discharging Test temperature: 20± 5° C Storage in open circuit condition not less than 1hr and not more than 4hr. Discharge current: 6 A End of discharge voltage: 2.5 V/cell Rated capacity - 24Ah	Time taken to reach end voltage is = time (hr) x amps (A) <b>Capacity = 4.36 x 6 = 26.16Ah</b>	Pass



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## TEST REPORT

Test Report No. : VTL/TR/2023/12/056

ULR No.: TC112402300001856F

DISCIPLINE : Electrical

page 3 of 4

Issue Date: 19/12/2023

GROUP : Cells & batteries

Sl. No.	Test Parameter	Test Standard with Cl. No.	Test Condition	Observations / Results	Remarks
5	Discharge Performance at -20°C	7.3.2 IS 16047:2018	After fully charged battery the battery shall be discharge at a constant current of 0.2 I <sub>t</sub> A , Until its voltage is equal to End of discharge voltage , 5 cycles of charging and discharging Test temperature: -20± 2° C Storage in open circuit condition not less than 16hr and not more than 24hr. Discharge current: 6 A End of discharge voltage: 2.5 V/cell Rated capacity - 24Ah Obtained capacity should be > 30% of rated capacity	Time taken to reach end voltage is = time (hr) x amps (A) <b>Capacity = 2.28x 6 = 13.68Ah</b>	<b>Pass</b>
				<b>Capacity = 13.68Ah</b>	



Tested By:	Approved By (Authorized Signatory):	Issued By:
		
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ULR No.: TC112402300001856F

DISCIPLINE : Electrical

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Issue Date: 19/12/2023

GROUP : Cells & batteries

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**END OF REPORT**



Tested By:	Approved By (Authorized Signatory):	Issued By:
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