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PHOTOMETRY LABORATORY

TC - 5762

Test Report

M/s. Stanjo LED Corporation

Report No. – PM-LAB-1-1802528

Product Name – 40W STREET LIGHT/ SLC-SL40

TEST DISCIPLINE : PHOTOMETRY

General Details:

Customer / Applicant	**M/s. Stanjo LED Corporation** #Survey No. 279, Apuroopa Township, Quthbullapur, Jeedimetla, Rangareddy, TS, India- 500055		
Manufacturer	**M/s. Stanjo LED Corporation**		
Test Standard	IES LM 79-08, Clauses No.8,9,10,11 and 12		
Product Name/Model No.	**40W STREET LIGHT/ SLC-SL40**		
Condition of Product on receipt	Good		
Date of Receipt	19/02/2018		
Applicable Standard	IES LM 79-08, Clauses No.8,9,10,11 and 12		
Date of Testing (Start Date)	26/02/2018	**End Date**	26/02/2018
General ^ Ambient Condition	**Temperature in ^{0}C**		25 ±1^{0}C
	Relative Humidity in %		≤70%
Test *in-charge*	Yogesh Chandane		

Hardik Save Testing Officer	Yogesh Chandane Technical Manager/ Quality Manager
Prepared By	**Authorised By**

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^ The applicable standard ambient condition supersedes the PM-LAB general conditions and are recorded in datasheets available in the PM-LAB.

General Remarks (if any)

NIL

Description of Item Under Test (IUT)

Rated Input Voltage	Frequency	Rated Input Current	Rated Input Power
110-300V AC (HV Cut Off >300V AC)	47-63Hz	0.18A@230V	40W

Light Source		Driver / Ballast	
Make/Specifications	Quantity	Make/Specifications	Quantity
SAMSUNG/ 3V, 3W, 3535 SMD PACKAGE	01	STANJO/ 40W, OUTPUT: 27VDC, 1.2A	01

Summary of Test Results

Test No.	Test Parameter	Standard & Clause No.	Sample/Item No.	Result
1	Colorimetric measurements	IES LM 79-08, Clauses No.12	1802528	Evaluate by Customer
2	Electrical & Photometric Measurements	IES LM 79-08, Clauses No.8,9,10 and 11		Evaluate by Customer

Prepared by

P. M. ELECTRO-AUTO PVT. LTD. PHOTOMETRY LAB PALGHAR

Approved by

P. M. Electro - Auto Pvt. Ltd. (Photometry Laboratory)
Survey No.102/1/2 Nagar Parishad House, Opp. ISKCON Food Relief Foundation,
Near Sukhsagar Lane, Mahim Road, Palghar West – 401 404

Report No.: PM-LAB-1-1802528
Date : 26-02-2018

Test No. 01: Colorimetric Measurements

Master Equipment and Calibration Details

Serial No.	Test Equipment	PMEA LAB Equipment ID	Calibration Date
1	Spectroradiometer	SL 300	20.04.2017
2	Measured Standard Lamp	S1520057	06.01.2018

Test Methodology Adopted

- The sample was tested according to the IES LM-79-2008.
- Orientation (burning position) of SSL product during testing was its normal burning position i.e, at zero degree inclination to horizontal.
- Colorimetric parameters were measured using an integrating sphere, a spectroradiometer and software.
- The ambient temperature was maintained at (25 ± 1) °C during testing.
- The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 240 Volts AC. It was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Test Observations:

Sr. No.	Perticular of Test	Obtained Values			
	Colorimetric Parameter				
1	Chromaticity Coordinates	x	y	u'	v'
		0.3289	0.3411	0.2044	0.4770
2	Correlated Color Temperature (K)	5660			
3	Color Rendering Index	73.7			
4	Chromaticity Differnce (Duv)	+0.00165			
5	Color Ratio	Kr (%)	Kg (%)	Kb (%)	
		31.3	58.7	10.0	
6	Bandwidth (nm)	21.1			
7	Dominant Wavelength (nm)	517.0			
8	Purity	0.0158			
9	Color Tolerance (SDCM)	10.0209			
10	Radiant Flux (W)	8.763			

P. M. ELECTRO-AUTO PVT. LTD. PHOTOMETRY LAB PALGHAR (W)

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*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting

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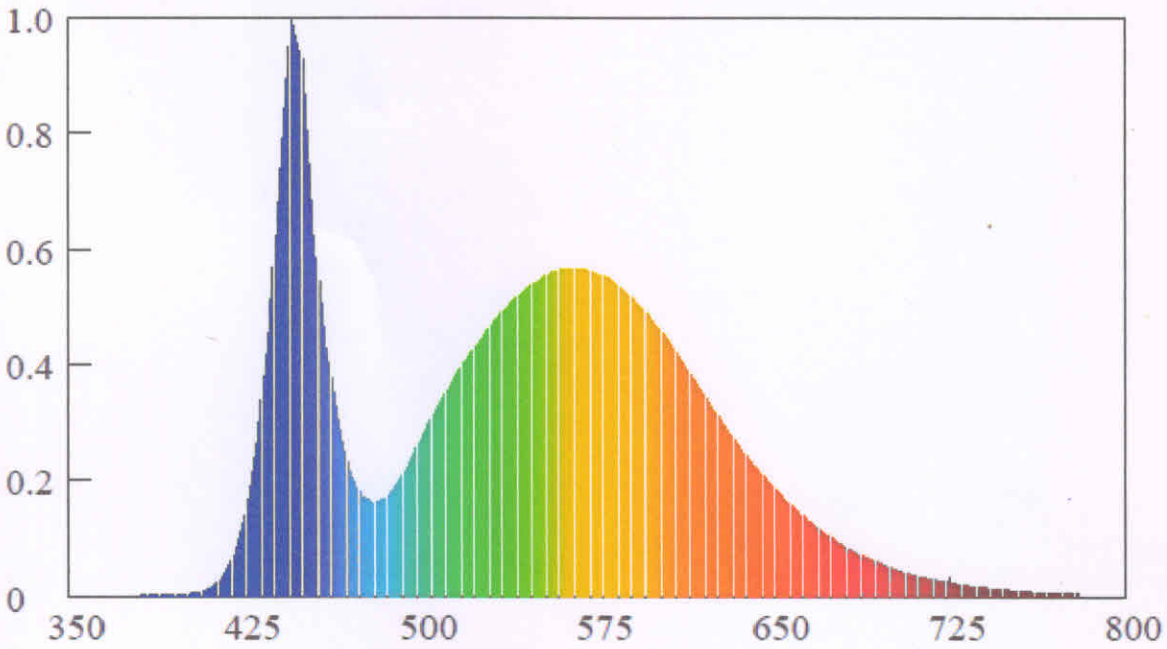
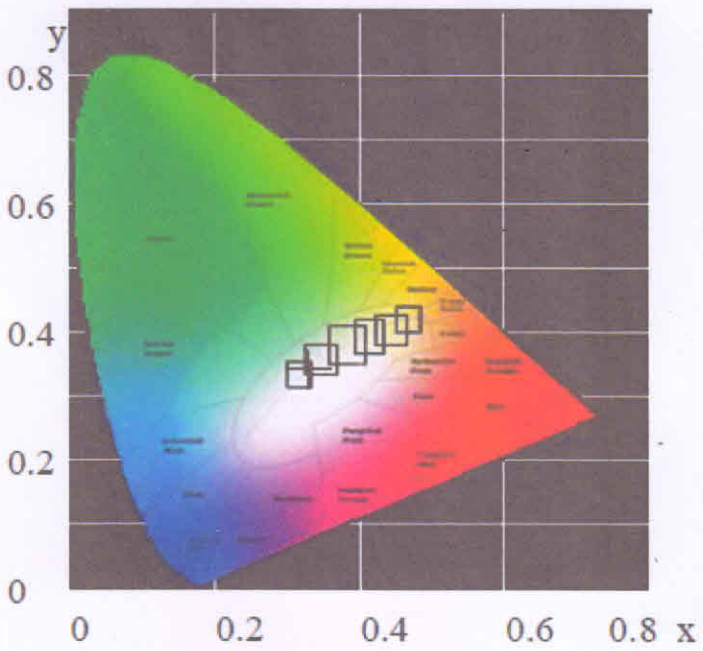
Spectral Distribution Graph



Spectral Distribution



CIE1931 Chromaticity Diagram

P. M. ELECTRO-AUTO PVT. LTD. PHOTOMETRY LAB. PALGHAR (W)

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Test No. 2: Electrical and Photometric Measurements

Master Equipment and Calibration Details

Serial No.	Test Equipment	PMEA LAB Equipment ID	Calibration Date
1	Goniophotometer	GMS 3000	20.04.2017
2	Measured Standard Lamp	S10151002	06.01.2018

Test Methodology Adopted

- The sample was tested according to the IES LM-79-2008.
- The condition of the sample tested was new. Stabilization time before testing was 30 minutes.
- Orientation (burning position) of SSL product during testing was its normal burning position i.e. at zero degree inclination to horizontal.
- Photometric parameters were obtained using a Type-C Goniophotometer and software.
- Photometric distance was more than five times of the largest dimension of the test sample.
- The ambient temperature was maintained at (25 ± 1) ^{0}C during testing.
- The sample was operated at 230 Volts AC. It was stabilized before measurement. Luminous flux, Luminous Efficacy, Zonal Lumen were calculated from the software.

Test Observations:

INPUT PARAMETER				
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
240.27	50	0.1660	39.04	0.9805

OUTPUT PARAMETER			
Flux (lm)	Efficacy (lm/W)	Central Intensity (cd)	Maximum Intensity (cd)
4288.79	109.86	1091.514	2816.100

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Zonal flux distribution table

Zone	Lumens	%Fixt
0-30	1035.31	24.14%
0-40	1880.48	43.85%
0-60	3730.09	86.97%
0-90	4277.85	99.75%
0-120	4281.47	99.83%
0-180	4288.79	100.00%
60-90	995.35	23.21%
90-120	5.37	0.13%
90-130	7.18	0.17%
90-150	10.61	0.25%
90-180	12.62	0.29%
0-56.66	3431.03	80.00%

ZONAL LUMEN SUMMARY

0-10	104.90
10-20	328.65
20-30	601.75
30-40	845.17
40-50	929.60
50-60	920.01
60-70	469.24
70-80	69.99
80-90	8.54
90-100	1.00
100-110	1.12
110-120	1.50
120-130	1.81
130-140	1.85
140-150	1.58
150-160	1.17
160-170	0.67
170-180	0.17

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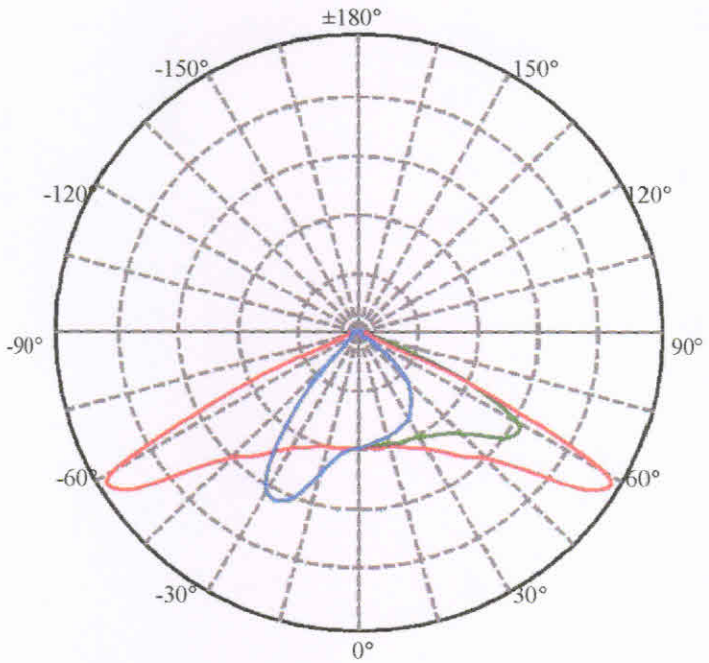
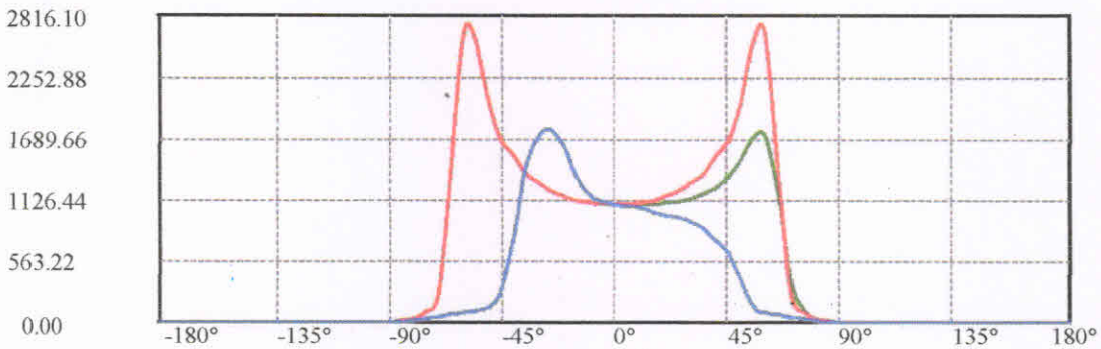
Light Distribution Curve [Unit:cd]





C22.5 (Max):
C0/C180:
C90/C270:

Field Angle (10%Imax):C0/180Left:130.0 Right: 10.0
:C90/270Left:23.8 Right:79.3

Beam Angle (50%Imax):C0/180Left:124.9 Right: 4.9
:C90/270Left:14.4 Right:58.0

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Intensity data(cd)

C/γ(°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	1091.51	1093.17	1102.18	1119.00	1152.65	1202.66	1269.96	1372.10	1517.84
22.5	1091.51	1083.62	1081.70	1085.53	1097.76	1115.29	1140.22	1183.62	1242.14
45.0	1091.51	1080.43	1063.80	1053.20	1038.73	1022.35	1006.69	990.55	977.05
67.5	1091.51	1068.83	1043.98	1020.32	997.60	970.62	937.16	888.44	810.57
90.0	1091.51	1067.17	1042.36	1015.63	985.56	960.74	925.90	849.06	755.99
112.5	1091.51	1068.83	1043.98	1020.32	997.60	970.62	937.16	888.44	810.57
135.0	1091.51	1080.43	1063.80	1053.20	1038.73	1022.35	1006.69	990.55	977.05
157.5	1091.51	1083.62	1081.70	1085.53	1097.76	1115.29	1140.22	1183.62	1242.14
180.0	1091.51	1093.17	1102.18	1119.00	1152.65	1202.66	1269.96	1372.10	1517.84
202.5	1091.51	1109.24	1125.82	1157.25	1226.29	1321.28	1495.17	1779.89	2141.35
225.0	1091.51	1115.62	1156.58	1226.45	1389.34	1661.14	1890.31	1957.08	1873.74
247.5	1091.51	1118.05	1168.94	1309.88	1585.56	1778.16	1788.71	1606.74	1064.98
270.0	1091.51	1117.76	1176.47	1348.29	1616.51	1761.12	1714.83	1418.44	802.77
292.5	1091.51	1118.05	1168.94	1309.88	1585.56	1778.16	1788.71	1606.74	1064.98
315.0	1091.51	1115.62	1156.58	1226.45	1389.34	1661.14	1890.31	1957.08	1873.74
337.5	1091.51	1109.24	1125.82	1157.25	1226.29	1321.28	1495.17	1779.89	2141.35
360.0	1091.51	1093.17	1102.18	1119.00	1152.65	1202.66	1269.96	1372.10	1517.84
C/γ(°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	1684.19	2019.28	2596.08	2627.12	1295.08	257.36	85.79	31.75	9.48
22.5	1340.99	1493.73	1707.86	1701.33	1139.79	375.82	98.42	24.49	7.44
45.0	943.55	871.50	651.01	238.24	102.87	59.51	33.49	15.18	4.09
67.5	707.60	502.36	202.76	95.31	69.03	47.54	31.05	15.52	4.06
90.0	627.13	388.97	139.84	92.11	68.73	46.77	29.59	15.27	4.30
112.5	707.60	502.36	202.76	95.31	69.03	47.54	31.05	15.52	4.06
135.0	943.55	871.50	651.01	238.24	102.87	59.51	33.49	15.18	4.09
157.5	1340.99	1493.73	1707.86	1701.33	1139.79	375.82	98.42	24.49	7.44
180.0	1684.19	2019.28	2596.08	2627.12	1295.08	257.36	85.79	31.75	9.48
202.5	2476.83	2758.31	2816.10	2007.20	721.11	185.79	79.08	21.33	5.75
225.0	1559.60	812.04	271.64	141.46	98.08	73.02	43.14	17.84	4.10
247.5	427.54	164.38	121.61	96.28	78.12	54.95	33.21	16.01	4.30
270.0	273.95	145.09	112.64	89.25	69.68	51.55	29.59	15.27	2.39
292.5	427.54	164.38	121.61	96.28	78.12	54.95	33.21	16.01	4.30
315.0	1559.60	812.04	271.64	141.46	98.08	73.02	43.14	17.84	4.10
337.5	2476.83	2758.31	2816.10	2007.20	721.11	185.79	79.08	21.33	5.75
360.0	1684.19	2019.28	2596.08	2627.12	1295.08	257.36	85.79	31.75	9.48
C/γ(°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	1.66	1.18	1.42	1.66	2.13	2.37	3.08	3.08	3.32
22.5	1.20	0.96	0.96	1.44	1.92	2.40	2.64	2.88	2.88
45.0	0.96	0.96	0.96	0.96	0.96	1.45	1.93	2.17	2.65
67.5	0.72	0.48	0.48	0.72	0.72	0.96	0.96	1.43	1.67
90.0	0.95	0.95	0.48	0.48	0.95	0.48	0.95	0.95	1.43
112.5	0.72	0.48	0.48	0.72	0.72	0.96	0.96	1.43	1.67
135.0	0.96	0.96	0.96	0.96	0.96	1.45	1.93	2.17	2.65
157.5	1.20	0.96	0.96	1.44	1.92	2.40	2.64	2.88	2.88
180.0	1.66	1.18	1.42	1.66	2.13	2.37	3.08	3.08	3.32
202.5	1.44	0.96	0.96	1.44	1.44	1.92	2.16	2.64	2.88
225.0	0.96	0.72	0.96	0.96	1.21	1.45	1.69	1.69	2.17
247.5	0.72	0.72	0.72	0.72	0.48	0.96	0.96	1.20	1.67
270.0	0.48	0.95	0.48	0.95	0.95	0.95	0.95	0.95	0.95
292.5	0.72	0.72	0.72	0.72	0.48	0.96	0.96	1.20	1.67
315.0	0.96	0.72	0.96	0.96	1.21	1.45	1.69	1.69	2.17
337.5	1.44	0.96	0.96	1.44	1.44	1.92	2.16	2.64	2.88
360.0	1.66	1.18	1.42	1.66	2.13	2.37	3.08	3.08	3.32

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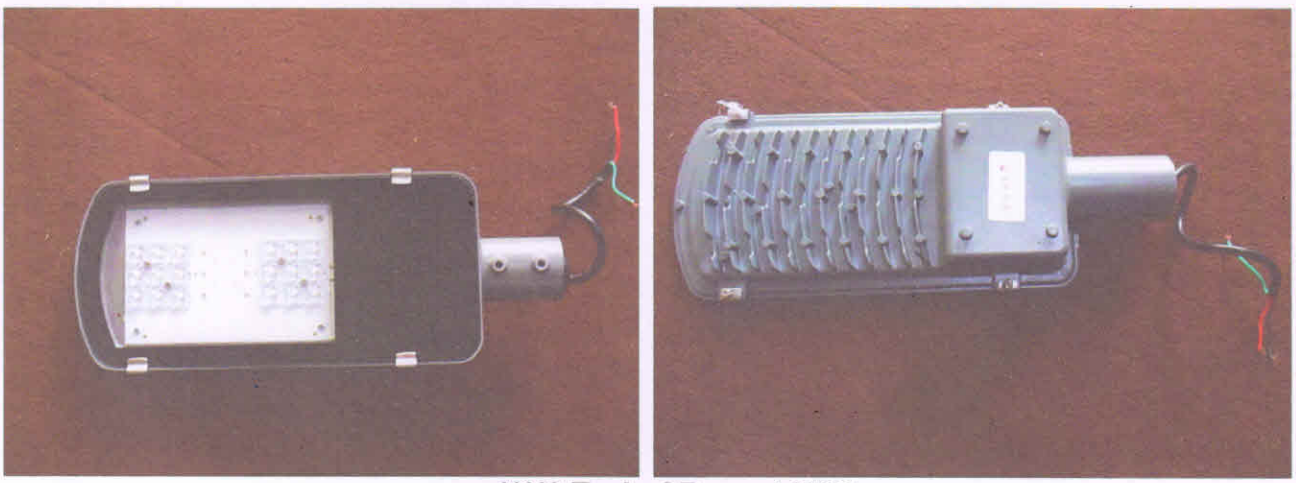
Intensity data(cd)

C/γ(°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0	180.0
0.0	3.55	3.32	3.08	2.84	2.84	2.61	2.37	2.37	2.37	2.84
22.5	2.88	2.88	2.88	2.88	2.88	2.64	2.64	2.40	2.40	2.40
45.0	2.65	2.65	2.89	2.89	2.65	2.89	2.41	2.41	2.41	2.41
67.5	2.15	2.39	2.63	2.63	2.87	2.63	2.39	2.39	2.39	2.39
90.0	1.91	1.91	2.39	2.86	2.86	2.86	2.39	2.39	2.39	2.39
112.5	2.15	2.39	2.63	2.63	2.87	2.63	2.39	2.39	2.39	2.39
135.0	2.65	2.65	2.89	2.89	2.65	2.89	2.41	2.41	2.41	2.41
157.5	2.88	2.88	2.88	2.88	2.88	2.64	2.64	2.40	2.40	2.40
180.0	3.55	3.32	3.08	2.84	2.84	2.61	2.37	2.37	2.37	2.84
202.5	2.64	2.64	2.64	2.64	2.40	2.40	2.16	2.40	2.16	2.40
225.0	1.93	1.93	2.17	2.17	2.41	1.93	2.41	2.41	2.41	2.41
247.5	1.67	1.91	1.91	1.91	1.91	2.15	2.15	1.91	2.39	2.39
270.0	1.43	1.91	1.91	1.91	1.91	2.39	1.91	2.39	1.91	2.39
292.5	1.67	1.91	1.91	1.91	1.91	2.15	2.15	1.91	2.39	2.39
315.0	1.93	1.93	2.17	2.17	2.41	1.93	2.41	2.41	2.41	2.41
337.5	2.64	2.64	2.64	2.64	2.40	2.40	2.16	2.40	2.16	2.40
360.0	3.55	3.32	3.08	2.84	2.84	2.61	2.37	2.37	2.37	2.84

Photographs



***** End of Report *****

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