

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P243398

Luminaire Tested: S123RDRP-H1165D835-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243398
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-64)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123RDRP-H1165D835-X4F0-XX-UDD-F-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

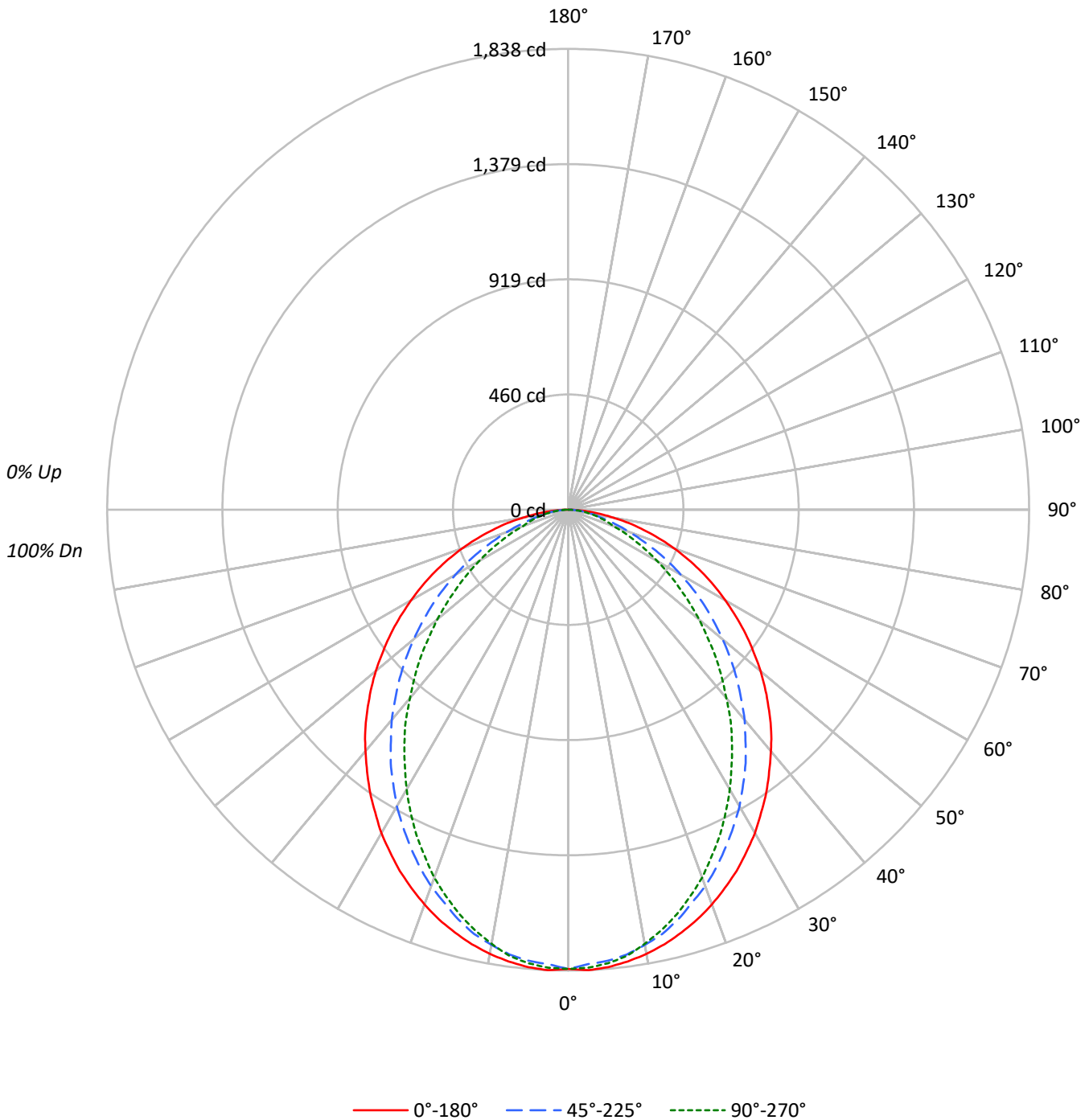
Lumens per Lamp: N/A
Luminaire Lumens: 4135.0 lumens
Efficiency: N/A
Efficacy: 109.7 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.07 / 1.22
Luminous Opening: Rectangular (W 0.23' x L: 3.88' x H: 0')
CIE Type: Direct

Input Watts (W): 37.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102
1	110	105	101	98	107	103	99	96	99	96	93	95	93	90	91	89	88
2	101	93	87	81	98	91	85	80	87	83	78	84	80	77	81	78	75
3	92	82	75	69	90	81	74	68	78	72	67	75	70	66	73	68	65
4	85	73	65	59	83	72	64	58	70	63	58	67	62	57	65	60	56
5	78	66	58	51	76	65	57	51	63	56	50	61	55	50	59	54	49
6	73	60	51	45	71	59	51	45	57	50	45	56	49	44	54	48	44
7	67	55	46	40	66	54	46	40	52	45	40	51	44	40	49	44	39
8	63	50	42	36	61	49	41	36	48	41	36	47	40	36	46	40	35
9	59	46	38	33	58	45	38	33	44	37	32	43	37	32	42	36	32
10	55	43	35	30	54	42	35	30	41	34	30	40	34	30	39	34	29

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	22199	22199	22199
5°	22284	21976	22095
10°	22144	21693	21642
15°	21905	21235	20970
20°	21610	20612	20139
25°	21258	19866	19151
30°	20849	19116	18034
35°	20377	18254	16839
40°	19898	17315	15513
45°	19410	16276	14274
50°	18886	15146	12838
55°	18252	13971	11384
60°	17527	12582	9922
65°	16824	11014	8472
70°	15852	9222	6780
75°	14626	7311	6454
80°	12767	6478	5891
85°	10764	5674	5480

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 19410 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.3	4.2
10°-20°	479.7	11.6
20°-30°	690.5	16.7
30°-40°	777.8	18.8
40°-50°	743.0	18.0
50°-60°	607.6	14.7
60°-70°	408.0	9.9
70°-80°	203.5	4.9
80°-90°	52.6	1.3
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	1342.4	32.5
0°-40°	2120.2	51.3
0°-60°	3470.9	83.9
0°-90°	4135.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4135.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1831	1831	1831	1831	1831	
5°	1831	1824	1806	1820	1816	174
15°	1746	1733	1692	1682	1671	492
25°	1590	1554	1485	1453	1432	732
35°	1377	1324	1234	1165	1138	861
45°	1132	1065	950	866	833	874
55°	864	786	661	570	539	772
65°	587	505	384	314	295	580
75°	312	238	156	141	138	331
85°	77	45	41	38	39	90
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1831.4	1831.4	1831.4	1831.4	1831.4	1831.4	1831.4	1831.4	1831.4	1831.4	1831.4
2.5°	1838.4	1834.2	1828.6	1830.0	1831.4	1832.8	1832.8	1831.4	1827.2	1821.6	1814.5
5°	1831.4	1827.2	1821.6	1821.6	1824.4	1824.4	1824.4	1823.0	1818.8	1813.1	1806.1
7.5°	1817.3	1814.5	1807.5	1808.9	1810.3	1810.3	1810.3	1808.9	1803.3	1796.2	1789.2
10°	1799.1	1794.8	1789.2	1789.2	1790.6	1790.6	1790.6	1787.8	1780.8	1772.3	1762.5
12.5°	1775.1	1770.9	1765.3	1765.3	1765.3	1765.3	1765.3	1761.1	1749.8	1741.4	1733.0
15°	1745.6	1741.4	1735.8	1735.8	1734.4	1733.0	1730.1	1723.1	1713.3	1703.4	1692.2
17.5°	1713.3	1707.6	1700.6	1699.2	1697.8	1696.4	1692.2	1687.9	1673.9	1659.8	1642.9
20°	1675.3	1669.7	1662.6	1661.2	1657.0	1652.8	1650.0	1641.5	1626.0	1609.2	1597.9
22.5°	1633.1	1627.5	1620.4	1617.6	1609.2	1606.4	1602.1	1589.5	1572.6	1557.1	1544.5
25°	1589.5	1582.4	1574.0	1569.8	1559.9	1554.3	1552.9	1534.6	1517.7	1500.9	1485.4
27.5°	1538.8	1533.2	1526.2	1517.7	1507.9	1500.9	1498.0	1481.2	1460.1	1440.4	1426.3
30°	1489.6	1481.2	1474.1	1464.3	1450.2	1443.2	1437.6	1420.7	1402.4	1378.5	1365.8
32.5°	1431.9	1426.3	1417.9	1408.0	1394.0	1388.3	1379.9	1358.8	1334.9	1318.0	1298.3
35°	1377.1	1371.4	1358.8	1348.9	1329.3	1323.6	1315.2	1296.9	1270.2	1250.5	1233.6
37.5°	1316.6	1309.6	1299.7	1285.6	1268.8	1261.7	1250.5	1232.2	1201.2	1181.6	1160.5
40°	1257.5	1247.7	1236.4	1220.9	1204.1	1197.0	1187.2	1160.5	1135.1	1112.6	1094.3
42.5°	1198.4	1187.2	1173.1	1159.1	1140.8	1130.9	1119.7	1094.3	1066.2	1045.1	1019.8
45°	1132.3	1123.9	1109.8	1092.9	1071.8	1064.8	1052.1	1025.4	997.3	974.8	949.5
47.5°	1067.6	1057.8	1043.7	1026.8	1005.7	995.9	983.2	956.5	928.4	900.2	877.7
50°	1001.5	991.7	974.8	957.9	938.2	925.6	914.3	887.6	856.6	831.3	803.2
52.5°	931.2	922.7	908.7	891.8	866.5	856.6	845.4	815.8	786.3	756.8	731.4
55°	863.7	858.0	841.2	824.3	797.6	786.3	775.0	744.1	714.6	685.0	661.1
57.5°	793.3	789.1	772.2	752.5	728.6	717.4	703.3	672.4	644.2	614.7	589.4
60°	723.0	718.8	701.9	682.2	659.7	645.6	630.2	606.3	573.9	547.2	519.0
62.5°	655.5	649.9	635.8	614.7	589.4	575.3	561.2	533.1	503.6	475.4	450.1
65°	586.6	579.5	562.6	541.5	517.6	505.0	490.9	464.2	434.6	407.9	384.0
67.5°	517.6	510.6	492.3	475.4	447.3	434.6	422.0	395.3	367.1	340.4	317.9
70°	447.3	440.3	426.2	403.7	379.8	367.1	354.5	326.3	301.0	281.3	260.2
72.5°	378.4	372.8	358.7	337.6	315.1	302.4	288.4	264.4	241.9	220.8	205.4
75°	312.3	303.8	291.2	271.5	249.0	237.7	227.9	204.0	182.9	168.8	156.1
77.5°	249.0	239.1	225.1	209.6	188.5	177.2	167.4	147.7	133.6	123.8	121.0
80°	182.9	181.5	167.4	150.5	132.2	123.8	113.9	101.3	97.1	95.6	92.8
82.5°	128.0	122.4	111.1	95.6	81.6	76.0	73.1	70.3	67.5	67.5	64.7
85°	77.4	71.7	61.9	49.2	46.4	45.0	43.6	43.6	42.2	40.8	40.8
87.5°	33.8	28.1	21.1	19.7	18.3	18.3	19.7	19.7	19.7	18.3	18.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1831.4	1831.4	1831.4	1831.4	1831.4	1831.4	1831.4	1831.4	1831.4	1831.4
2.5°	1817.3	1824.4	1828.6	1830.0	1830.0	1830.0	1831.4	1831.4	1830.0	1828.6
5°	1807.5	1814.5	1817.3	1820.2	1820.2	1820.2	1820.2	1820.2	1818.8	1815.9
7.5°	1792.0	1796.2	1800.5	1799.1	1799.1	1797.7	1796.2	1797.7	1794.8	1794.8
10°	1763.9	1768.1	1770.9	1766.7	1766.7	1768.1	1768.1	1766.7	1762.5	1758.3
12.5°	1731.5	1735.8	1731.5	1733.0	1730.1	1727.3	1725.9	1724.5	1720.3	1717.5
15°	1689.3	1689.3	1686.5	1686.5	1682.3	1676.7	1675.3	1676.7	1671.1	1671.1
17.5°	1642.9	1640.1	1635.9	1633.1	1631.7	1631.7	1626.0	1626.0	1619.0	1617.6
20°	1592.3	1589.5	1585.3	1578.2	1575.4	1576.8	1571.2	1567.0	1562.7	1561.3
22.5°	1538.8	1531.8	1527.6	1520.6	1514.9	1514.9	1510.7	1503.7	1499.5	1495.2
25°	1478.4	1471.3	1462.9	1457.3	1453.0	1446.0	1443.2	1437.6	1433.3	1431.9
27.5°	1416.5	1405.2	1394.0	1388.3	1385.5	1377.1	1372.9	1370.0	1361.6	1360.2
30°	1350.4	1341.9	1327.8	1318.0	1311.0	1312.4	1302.5	1296.9	1292.7	1288.5
32.5°	1287.1	1273.0	1258.9	1246.3	1237.8	1236.4	1226.6	1220.9	1216.7	1212.5
35°	1215.3	1201.2	1184.4	1173.1	1164.7	1160.5	1150.6	1147.8	1140.8	1138.0
37.5°	1143.6	1128.1	1111.2	1097.2	1091.5	1081.7	1077.5	1070.4	1064.8	1064.8
40°	1073.2	1055.0	1038.1	1021.2	1014.2	1008.5	997.3	991.7	984.6	980.4
42.5°	1000.1	979.0	963.5	948.1	938.2	934.0	921.3	914.3	907.3	905.9
45°	927.0	905.9	886.2	870.7	866.5	858.0	845.4	835.5	834.1	832.7
47.5°	852.4	831.3	813.0	796.1	790.5	780.7	772.2	765.2	756.8	752.5
50°	780.7	759.6	739.9	721.6	714.6	706.1	697.7	687.8	685.0	680.8
52.5°	708.9	685.0	663.9	647.0	641.4	634.4	624.5	616.1	611.9	609.1
55°	635.8	611.9	593.6	576.7	569.7	565.5	554.2	547.2	541.5	538.7
57.5°	564.1	540.1	523.3	510.6	500.8	496.5	485.3	478.2	475.4	474.0
60°	496.5	474.0	455.7	443.1	434.6	430.4	422.0	415.0	410.7	409.3
62.5°	429.0	409.3	392.4	379.8	374.2	368.5	361.5	355.9	351.7	351.7
65°	364.3	344.6	329.1	319.3	313.7	310.9	302.4	299.6	295.4	295.4
67.5°	301.0	286.9	275.7	263.0	258.8	258.8	250.4	247.6	244.8	244.8
70°	246.2	233.5	220.8	213.8	209.6	208.2	201.1	196.9	194.1	191.3
72.5°	192.7	181.5	170.2	168.8	168.8	167.4	167.4	164.6	164.6	166.0
75°	147.7	144.9	142.1	142.1	140.7	139.3	139.3	137.8	137.8	137.8
77.5°	118.2	116.7	115.3	113.9	113.9	112.5	111.1	111.1	111.1	111.1
80°	90.0	88.6	88.6	87.2	85.8	87.2	85.8	85.8	84.4	84.4
82.5°	63.3	63.3	63.3	61.9	61.9	61.9	61.9	60.5	60.5	61.9
85°	39.4	39.4	39.4	39.4	38.0	39.4	38.0	38.0	38.0	39.4
87.5°	16.9	18.3	16.9	18.3	18.3	16.9	16.9	16.9	16.9	16.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	22.29	23.85	22.66	24.16	24.48	19.49	21.04	19.85	21.36	21.67
	3H	24.12	25.52	24.50	25.85	26.21	20.56	21.96	20.94	22.29	22.65
	4H	24.81	26.12	25.21	26.47	26.85	20.96	22.27	21.36	22.62	23.00
	6H	25.31	26.52	25.72	26.89	27.28	21.28	22.49	21.69	22.86	23.25
	8H	25.46	26.62	25.89	27.01	27.41	21.39	22.55	21.82	22.93	23.33
	12H	25.56	26.67	25.99	27.05	27.48	21.47	22.57	21.90	22.95	23.38
4H	2H	22.54	23.85	22.93	24.19	24.57	20.21	21.52	20.61	21.87	22.24
	3H	24.53	25.62	24.94	26.01	26.42	21.43	22.52	21.84	22.92	23.32
	4H	25.31	26.30	25.75	26.71	27.15	21.92	22.90	22.35	23.31	23.75
	6H	25.93	26.79	26.39	27.23	27.69	22.34	23.19	22.79	23.63	24.09
	8H	26.14	26.93	26.60	27.38	27.84	22.48	23.28	22.94	23.72	24.19
	12H	26.28	26.99	26.76	27.47	27.94	22.59	23.31	23.07	23.79	24.26
8H	4H	25.35	26.15	25.81	26.59	27.06	22.23	23.03	22.70	23.48	23.94
	6H	26.02	26.68	26.51	27.17	27.65	22.75	23.41	23.24	23.90	24.38
	8H	26.26	26.85	26.77	27.36	27.85	22.95	23.55	23.47	24.05	24.54
	12H	26.45	26.98	26.96	27.47	28.03	23.13	23.65	23.64	24.14	24.71
12H	4H	25.34	26.05	25.82	26.53	27.00	22.27	22.99	22.75	23.46	23.93
	6H	26.00	26.60	26.52	27.11	27.59	22.80	23.40	23.32	23.91	24.39
	8H	26.28	26.80	26.79	27.30	27.86	23.06	23.58	23.57	24.08	24.64