

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: P243401

Luminaire Tested: S123RDRP-H775D840-X4F0-XX-UDD-F-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243401  
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-H775D840-X4F0-XX-UDD-F-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH SATIN FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 4000K CCT, 80 CRI LEDS  
Ballast/Driver: -

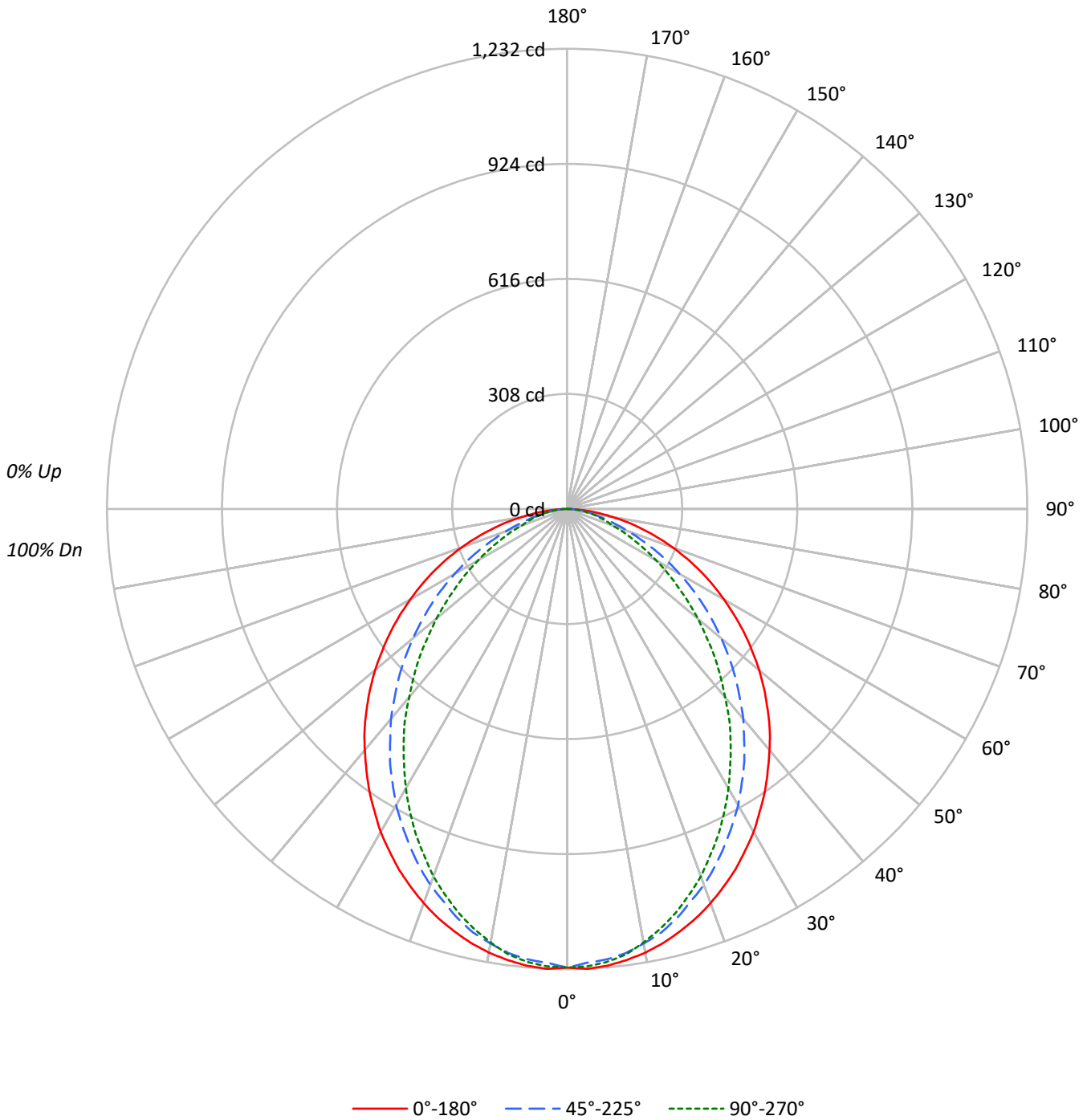
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2771.8 lumens  
Efficiency: N/A  
Efficacy: 117.4 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): 23.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	110	105	101	98	107	103	99	96	99	96	93	95	93	90	91	89	88					86				
2	101	93	87	81	98	91	85	80	87	83	78	84	80	77	81	78	75					73				
3	92	82	75	69	90	81	74	68	78	72	67	75	70	66	73	68	65					62				
4	85	73	65	59	83	72	64	58	70	63	58	67	62	57	65	60	56					54				
5	78	66	58	51	76	65	57	51	63	56	50	61	55	50	59	54	49					47				
6	73	60	51	45	71	59	51	45	57	50	45	56	49	44	54	48	44					42				
7	67	55	46	40	66	54	46	40	52	45	40	51	44	40	49	44	39					37				
8	63	50	42	36	61	49	41	36	48	41	36	47	40	36	46	40	35					34				
9	59	46	38	33	58	45	38	33	44	37	32	43	37	32	42	36	32					30				
10	55	43	35	30	54	42	35	30	41	34	30	40	34	30	39	34	29					28				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	14880	14880	14880
5°	14937	14731	14812
10°	14844	14541	14506
15°	14683	14234	14057
20°	14486	13816	13500
25°	14250	13317	12838
30°	13975	12814	12089
35°	13659	12236	11287
40°	13337	11608	10399
45°	13011	10911	9569
50°	12659	10153	8606
55°	12234	9366	7631
60°	11748	8434	6652
65°	11277	7383	5679
70°	10625	6181	4543
75°	9802	4903	4327
80°	8558	4342	3951
85°	7218	3797	3672

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 13011 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	115.5	4.2
10°-20°	321.5	11.6
20°-30°	462.9	16.7
30°-40°	521.4	18.8
40°-50°	498.1	18.0
50°-60°	407.3	14.7
60°-70°	273.5	9.9
70°-80°	136.4	4.9
80°-90°	35.3	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°	899.9	32.5
0°-40°	1421.3	51.3
0°-60°	2326.6	83.9
0°-90°	2771.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2771.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1228	1228	1228	1228	1228	
5°	1228	1223	1211	1220	1217	116
15°	1170	1162	1134	1128	1120	330
25°	1066	1042	996	974	960	490
35°	923	887	827	781	763	577
45°	759	714	636	581	558	586
55°	579	527	443	382	361	517
65°	393	338	257	210	198	389
75°	209	159	105	94	92	222
85°	52	30	27	26	26	60
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°	1227.6	1227.6	1227.6	1227.6	1227.6	1227.6	1227.6	1227.6	1227.6	1227.6	1227.6
2.5°	1232.4	1229.5	1225.8	1226.7	1227.6	1228.6	1228.6	1227.6	1224.8	1221.0	1216.3
5°	1227.6	1224.8	1221.0	1221.0	1222.9	1222.9	1222.9	1222.0	1219.2	1215.4	1210.7
7.5°	1218.2	1216.3	1211.6	1212.6	1213.5	1213.5	1213.5	1212.6	1208.8	1204.1	1199.4
10°	1206.0	1203.1	1199.4	1199.4	1200.3	1200.3	1200.3	1198.4	1193.7	1188.0	1181.4
12.5°	1189.9	1187.1	1183.3	1183.3	1183.3	1183.3	1183.3	1180.5	1173.0	1167.3	1161.6
15°	1170.1	1167.3	1163.5	1163.5	1162.6	1161.6	1159.8	1155.0	1148.4	1141.8	1134.3
17.5°	1148.4	1144.7	1140.0	1139.0	1138.1	1137.1	1134.3	1131.5	1122.0	1112.6	1101.3
20°	1123.0	1119.2	1114.5	1113.6	1110.7	1107.9	1106.0	1100.4	1090.0	1078.7	1071.1
22.5°	1094.7	1090.9	1086.2	1084.3	1078.7	1076.8	1074.0	1065.5	1054.2	1043.8	1035.3
25°	1065.5	1060.8	1055.1	1052.3	1045.7	1041.9	1041.0	1028.7	1017.4	1006.1	995.7
27.5°	1031.5	1027.7	1023.0	1017.4	1010.8	1006.1	1004.2	992.9	978.7	965.5	956.1
30°	998.5	992.9	988.1	981.5	972.1	967.4	963.6	952.3	940.1	924.0	915.5
32.5°	959.9	956.1	950.4	943.8	934.4	930.6	925.0	910.8	894.8	883.5	870.3
35°	923.1	919.3	910.8	904.2	891.0	887.3	881.6	869.3	851.4	838.2	826.9
37.5°	882.5	877.8	871.2	861.8	850.5	845.8	838.2	826.0	805.2	792.0	777.9
40°	842.9	836.3	828.8	818.4	807.1	802.4	795.8	777.9	760.9	745.8	733.6
42.5°	803.3	795.8	786.4	776.9	764.7	758.1	750.5	733.6	714.7	700.6	683.6
45°	759.0	753.4	743.9	732.6	718.5	713.8	705.3	687.4	668.5	653.4	636.5
47.5°	715.7	709.1	699.6	688.3	674.2	667.6	659.1	641.2	622.3	603.4	588.4
50°	671.3	664.7	653.4	642.1	628.9	620.4	612.9	595.0	574.2	557.2	538.4
52.5°	624.2	618.5	609.1	597.8	580.8	574.2	566.7	546.9	527.1	507.3	490.3
55°	578.9	575.2	563.8	552.5	534.6	527.1	519.5	498.8	479.0	459.2	443.2
57.5°	531.8	529.0	517.6	504.4	488.4	480.9	471.4	450.7	431.8	412.0	395.1
60°	484.6	481.8	470.5	457.3	442.2	432.8	422.4	406.4	384.7	366.8	347.9
62.5°	439.4	435.6	426.2	412.0	395.1	385.6	376.2	357.4	337.6	318.7	301.7
65°	393.2	388.5	377.2	363.0	347.0	338.5	329.1	311.2	291.4	273.4	257.4
67.5°	347.0	342.3	330.0	318.7	299.8	291.4	282.9	265.0	246.1	228.2	213.1
70°	299.8	295.1	285.7	270.6	254.6	246.1	237.6	218.8	201.8	188.6	174.4
72.5°	253.6	249.9	240.4	226.3	211.2	202.7	193.3	177.3	162.2	148.0	137.7
75°	209.3	203.7	195.2	182.0	166.9	159.3	152.7	136.7	122.6	113.1	104.7
77.5°	166.9	160.3	150.9	140.5	126.3	118.8	112.2	99.0	89.6	83.0	81.1
80°	122.6	121.6	112.2	100.9	88.6	83.0	76.4	67.9	65.1	64.1	62.2
82.5°	85.8	82.0	74.5	64.1	54.7	50.9	49.0	47.1	45.3	45.3	43.4
85°	51.9	48.1	41.5	33.0	31.1	30.2	29.2	29.2	28.3	27.3	27.3
87.5°	22.6	18.9	14.1	13.2	12.3	12.3	13.2	13.2	13.2	12.3	12.3
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°	1227.6	1227.6	1227.6	1227.6	1227.6	1227.6	1227.6	1227.6	1227.6	1227.6
2.5°	1218.2	1222.9	1225.8	1226.7	1226.7	1226.7	1227.6	1227.6	1226.7	1225.8
5°	1211.6	1216.3	1218.2	1220.1	1220.1	1220.1	1220.1	1220.1	1219.2	1217.3
7.5°	1201.2	1204.1	1206.9	1206.0	1206.0	1205.0	1204.1	1205.0	1203.1	1203.1
10°	1182.4	1185.2	1187.1	1184.3	1184.3	1185.2	1185.2	1184.3	1181.4	1178.6
12.5°	1160.7	1163.5	1160.7	1161.6	1159.8	1157.9	1156.9	1156.0	1153.2	1151.3
15°	1132.4	1132.4	1130.5	1130.5	1127.7	1123.9	1123.0	1123.9	1120.2	1120.2
17.5°	1101.3	1099.4	1096.6	1094.7	1093.8	1093.8	1090.0	1090.0	1085.3	1084.3
20°	1067.4	1065.5	1062.6	1057.9	1056.0	1057.0	1053.2	1050.4	1047.6	1046.6
22.5°	1031.5	1026.8	1024.0	1019.3	1015.5	1015.5	1012.7	1007.9	1005.1	1002.3
25°	991.0	986.3	980.6	976.8	974.0	969.3	967.4	963.6	960.8	959.9
27.5°	949.5	941.9	934.4	930.6	928.7	923.1	920.3	918.4	912.7	911.8
30°	905.2	899.5	890.1	883.5	878.8	879.7	873.1	869.3	866.5	863.7
32.5°	862.7	853.3	843.9	835.4	829.7	828.8	822.2	818.4	815.6	812.8
35°	814.7	805.2	793.9	786.4	780.7	777.9	771.3	769.4	764.7	762.8
37.5°	766.6	756.2	744.9	735.5	731.7	725.1	722.3	717.5	713.8	713.8
40°	719.4	707.2	695.9	684.5	679.8	676.1	668.5	664.7	660.0	657.2
42.5°	670.4	656.3	645.9	635.5	628.9	626.1	617.6	612.9	608.2	607.2
45°	621.4	607.2	594.0	583.6	580.8	575.2	566.7	560.1	559.1	558.2
47.5°	571.4	557.2	545.0	533.7	529.9	523.3	517.6	512.9	507.3	504.4
50°	523.3	509.2	496.0	483.7	479.0	473.3	467.7	461.1	459.2	456.4
52.5°	475.2	459.2	445.0	433.7	430.0	425.2	418.6	413.0	410.2	408.3
55°	426.2	410.2	397.9	386.6	381.9	379.0	371.5	366.8	363.0	361.1
57.5°	378.1	362.1	350.8	342.3	335.7	332.8	325.3	320.6	318.7	317.8
60°	332.8	317.8	305.5	297.0	291.4	288.5	282.9	278.2	275.3	274.4
62.5°	287.6	274.4	263.1	254.6	250.8	247.0	242.3	238.6	235.7	235.7
65°	244.2	231.0	220.6	214.0	210.3	208.4	202.7	200.8	198.0	198.0
67.5°	201.8	192.3	184.8	176.3	173.5	173.5	167.8	165.9	164.1	164.1
70°	165.0	156.5	148.0	143.3	140.5	139.5	134.8	132.0	130.1	128.2
72.5°	129.2	121.6	114.1	113.1	113.1	112.2	112.2	110.3	110.3	111.3
75°	99.0	97.1	95.2	95.2	94.3	93.3	93.3	92.4	92.4	92.4
77.5°	79.2	78.3	77.3	76.4	76.4	75.4	74.5	74.5	74.5	74.5
80°	60.3	59.4	59.4	58.5	57.5	58.5	57.5	57.5	56.6	56.6
82.5°	42.4	42.4	42.4	41.5	41.5	41.5	41.5	40.5	40.5	41.5
85°	26.4	26.4	26.4	26.4	25.5	26.4	25.5	25.5	25.5	26.4
87.5°	11.3	12.3	11.3	12.3	12.3	11.3	11.3	11.3	11.3	11.3
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	20.90	22.46	21.27	22.77	23.09	18.10	19.65	18.46	19.97	20.28
	3H	22.73	24.13	23.11	24.46	24.82	19.17	20.57	19.55	20.90	21.26
	4H	23.42	24.73	23.82	25.08	25.46	19.57	20.88	19.97	21.23	21.61
	6H	23.92	25.13	24.33	25.50	25.89	19.89	21.10	20.30	21.47	21.86
	8H	24.07	25.23	24.50	25.62	26.02	20.00	21.16	20.43	21.54	21.94
	12H	24.17	25.28	24.60	25.66	26.09	20.08	21.18	20.51	21.56	21.99
4H	2H	21.15	22.46	21.54	22.80	23.18	18.82	20.13	19.22	20.48	20.85
	3H	23.14	24.23	23.55	24.62	25.03	20.04	21.13	20.45	21.53	21.93
	4H	23.92	24.91	24.36	25.32	25.76	20.53	21.51	20.96	21.92	22.36
	6H	24.54	25.40	25.00	25.84	26.30	20.95	21.80	21.40	22.24	22.70
	8H	24.75	25.54	25.21	25.99	26.45	21.09	21.89	21.55	22.33	22.80
	12H	24.89	25.60	25.37	26.08	26.55	21.20	21.92	21.68	22.39	22.87
8H	4H	23.96	24.76	24.43	25.20	25.67	20.84	21.64	21.31	22.09	22.55
	6H	24.63	25.29	25.13	25.78	26.26	21.36	22.02	21.85	22.51	22.99
	8H	24.87	25.46	25.38	25.97	26.46	21.56	22.16	22.08	22.66	23.15
	12H	25.06	25.59	25.57	26.08	26.64	21.74	22.26	22.25	22.75	23.32
12H	4H	23.95	24.66	24.43	25.14	25.61	20.88	21.60	21.36	22.07	22.54
	6H	24.61	25.21	25.13	25.72	26.20	21.41	22.01	21.93	22.52	23.00
	8H	24.89	25.41	25.40	25.91	26.47	21.67	22.19	22.18	22.69	23.25