

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



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P904039

Luminaire Tested: DFN2DIP-SQ4F0-080D140US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904039
REPORT IS A COMBINATION OF REPORTS P901710 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D140US830-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

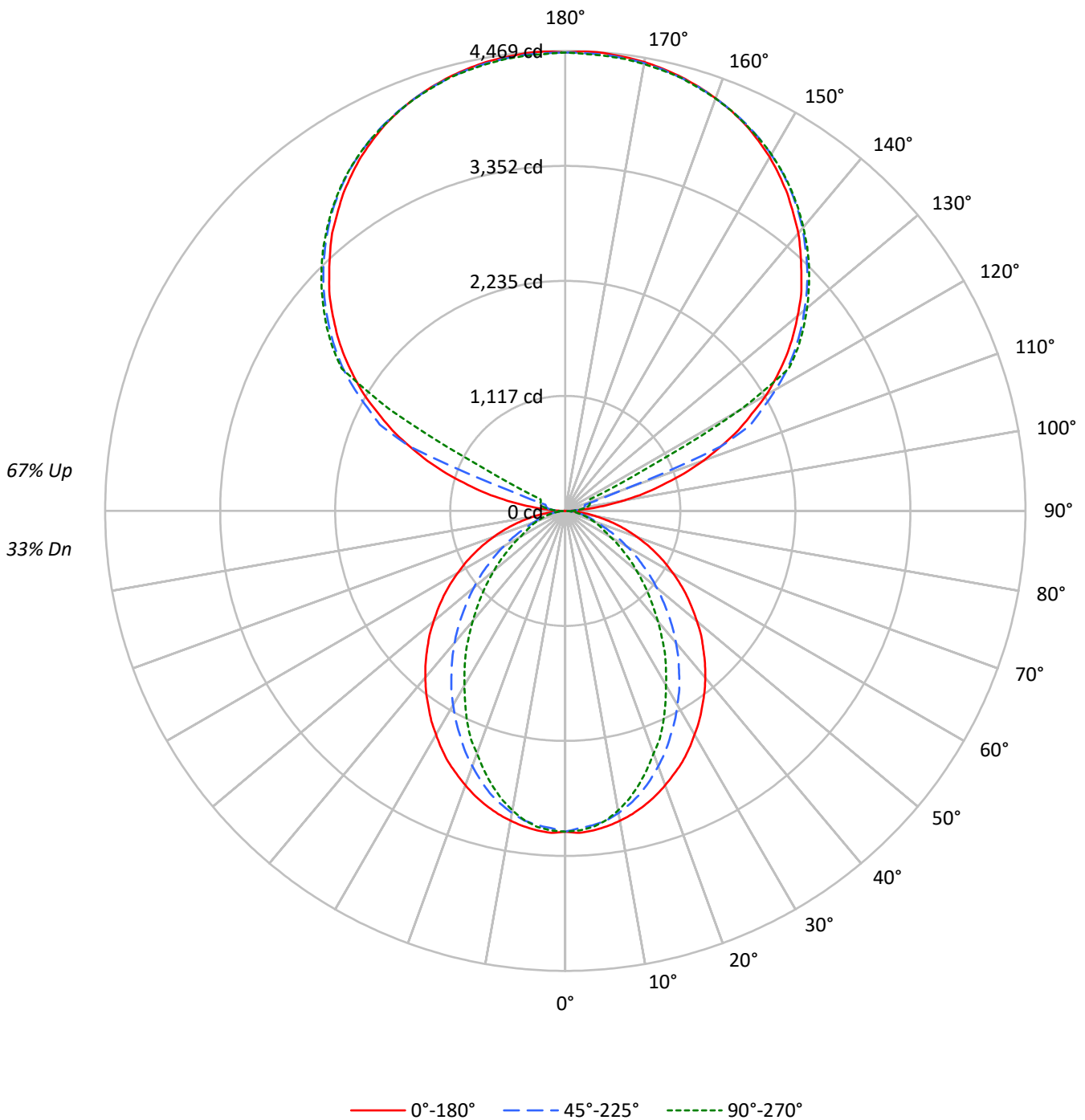
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 19472.9 lumens
Efficiency: N/A
Efficacy: 109.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 177.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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				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	0	
RCR																						
0	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40	33				33
1	94	90	87	83	85	81	78	76	65	63	61	50	49	48	36	35	35	28				28
2	86	79	73	68	77	72	67	62	57	54	51	44	42	40	32	31	30	24				24
3	79	70	63	57	71	63	57	53	51	47	43	39	37	34	29	27	26	21				21
4	72	62	54	49	65	56	50	45	45	41	37	35	32	30	26	24	22	18				18
5	66	55	47	42	59	50	43	38	41	36	32	32	28	26	24	21	20	16				16
6	61	49	42	36	55	45	38	33	37	32	28	29	25	23	21	19	17	14				14
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	20	17	16	13				13
8	52	41	33	28	47	37	31	26	30	25	22	24	21	18	18	16	14	12				12
9	49	37	30	25	44	34	27	23	28	23	20	22	19	16	17	14	13	10				10
10	45	34	27	22	41	31	25	21	26	21	18	20	17	15	16	13	12	10				10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2187	2187	2187
5°	2190	2152	2166
10°	2168	2111	2097
15°	2139	2041	1988
20°	2099	1946	1855
25°	2059	1838	1726
30°	2004	1728	1563
35°	1951	1609	1419
40°	1897	1487	1254
45°	1834	1351	1105
50°	1769	1213	959
55°	1701	1066	819
60°	1622	913	675
65°	1532	756	608
70°	1422	611	551
75°	1284	539	503
80°	1085	454	438
85°	755	305	333

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2388 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	292.1	1.5
10°-20°	801.8	4.1
20°-30°	1125.7	5.8
30°-40°	1227.1	6.3
40°-50°	1127.8	5.8
50°-60°	885.7	4.5
60°-70°	576.5	3.0
70°-80°	296.8	1.5
80°-90°	83.6	0.4
90°-100°	146.9	0.8
100°-110°	547.4	2.8
110°-120°	1451.8	7.5
120°-130°	2408.0	12.4
130°-140°	2557.8	13.1
140°-150°	2377.2	12.2
150°-160°	1911.2	9.8
160°-170°	1231.5	6.3
170°-180°	423.9	2.2
0°-30°	2219.6	11.4
0°-40°	3446.7	17.7
0°-60°	5460.2	28.0
0°-90°	6417.2	33.0
90°-120°	2146.1	11.0
90°-150°	9489.1	48.7
90°-180°	13056.0	67.0
0°-180°	19472.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3116	3116	3116	3116	3116	
5°	3116	3102	3066	3091	3083	296
15°	2964	2933	2837	2784	2756	835
25°	2691	2600	2414	2299	2256	1237
35°	2318	2174	1926	1749	1686	1451
45°	1895	1706	1410	1210	1142	1464
55°	1441	1221	916	747	694	1288
65°	973	744	491	395	386	965
75°	519	321	226	206	203	549
85°	121	62	54	54	54	139
90°	3	39	64	81	87	18
95°	209	103	126	142	139	248
105°	980	1076	197	232	245	1047
115°	1853	1908	1988	496	264	1824
125°	2620	2662	2723	2746	2755	2336
135°	3242	3294	3322	3355	3348	2504
145°	3761	3757	3812	3835	3818	2352
155°	4141	4112	4151	4170	4144	1908
165°	4363	4344	4354	4376	4354	1233
175°	4463	4440	4447	4469	4437	425
180°	4453	4453	4453	4453	4453	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3116.4	3116.4	3116.4	3116.4	3116.4
2.5°	3130.5	3116.4	3085.3	3113.7	3108.0
5°	3116.4	3102.4	3065.5	3091.0	3082.6
7.5°	3091.0	3074.2	3034.7	3045.8	3031.7
10°	3057.1	3037.4	2981.2	2972.5	2955.7
12.5°	3015.0	2989.6	2913.2	2896.4	2865.3
15°	2964.1	2933.0	2837.2	2783.7	2755.5
17.5°	2904.8	2859.7	2741.2	2679.3	2634.0
20°	2837.2	2780.7	2639.8	2569.5	2507.2
22.5°	2763.9	2699.0	2535.3	2439.6	2397.4
25°	2690.6	2600.3	2414.1	2298.7	2256.2
27.5°	2603.2	2507.2	2301.3	2168.8	2103.8
30°	2510.2	2402.7	2177.2	2033.5	1957.2
32.5°	2419.8	2290.0	2059.0	1889.6	1819.0
35°	2318.4	2174.4	1926.4	1748.7	1686.4
37.5°	2219.6	2064.4	1802.2	1607.4	1537.1
40°	2115.3	1946.2	1672.4	1472.2	1398.8
42.5°	2008.1	1827.7	1542.8	1334.0	1263.6
45°	1895.3	1706.2	1410.2	1209.8	1142.2
47.5°	1788.2	1588.0	1283.4	1082.9	1021.0
50°	1669.6	1469.5	1159.2	964.4	905.4
52.5°	1553.9	1342.3	1040.7	854.6	801.1
55°	1441.1	1221.2	916.5	747.4	693.9
57.5°	1325.6	1099.9	806.7	648.8	603.5
60°	1207.0	981.5	690.9	547.2	502.1
62.5°	1091.6	865.9	592.2	456.9	434.5
65°	973.1	744.4	490.7	395.0	386.3
67.5°	860.3	631.7	395.0	346.8	338.5
70°	741.8	521.9	327.1	298.9	287.6
72.5°	629.0	420.1	273.5	251.1	245.3
75°	518.9	321.4	225.6	205.9	203.2
77.5°	409.1	228.3	177.8	166.4	160.7
80°	307.3	163.7	135.3	124.1	124.1
82.5°	214.2	110.1	93.0	87.4	87.4
85°	121.2	61.9	53.5	53.5	53.5
87.5°	45.1	22.4	22.4	19.8	19.8
90°	3.0	38.6	64.3	80.8	86.9
92.5°	80.8	67.8	77.3	83.8	86.9
95°	209.3	102.9	125.5	141.9	138.6
97.5°	376.9	112.9	164.2	174.1	177.2
100°	570.5	128.9	183.7	209.3	215.8
102.5°	782.9	776.7	190.2	225.4	235.4
105°	979.6	1076.4	196.7	231.9	244.9
107.5°	1208.4	1288.7	203.2	238.4	251.4
110°	1427.7	1495.1	564.0	241.9	254.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1633.9	1691.7	1637.0	248.0	257.9
115°	1852.8	1907.5	1988.3	496.3	264.4
117.5°	2043.0	2107.2	2162.4	1701.3	857.1
120°	2255.8	2304.0	2362.1	2400.7	1965.7
122.5°	2436.0	2487.7	2552.3	2571.4	2574.9
125°	2619.7	2661.7	2723.0	2745.5	2755.1
127.5°	2787.3	2832.4	2881.0	2913.1	2916.2
130°	2945.3	2997.0	3032.2	3067.8	3064.7
132.5°	3106.4	3148.5	3183.7	3212.7	3209.7
135°	3241.9	3293.5	3322.2	3354.7	3348.2
137.5°	3383.4	3422.1	3454.6	3486.7	3477.2
140°	3522.0	3548.0	3583.2	3612.3	3596.2
142.5°	3638.3	3660.8	3702.6	3728.2	3712.1
145°	3760.7	3757.3	3812.0	3834.6	3818.5
147.5°	3866.8	3857.2	3911.9	3928.0	3915.3
150°	3970.1	3947.5	3999.1	4018.2	4002.2
152.5°	4056.9	4031.3	4079.5	4099.0	4076.4
155°	4140.7	4112.0	4150.7	4169.8	4144.2
157.5°	4208.5	4182.8	4211.9	4234.5	4208.5
160°	4266.6	4247.1	4266.6	4285.7	4263.2
162.5°	4317.9	4298.7	4314.9	4337.4	4308.4
165°	4363.0	4343.9	4353.5	4376.0	4353.5
167.5°	4398.7	4379.1	4389.0	4411.7	4382.5
170°	4427.7	4408.2	4414.7	4437.3	4408.2
172.5°	4446.8	4427.7	4434.2	4456.8	4427.7
175°	4462.9	4440.3	4446.8	4469.4	4437.3
177.5°	4469.4	4446.8	4450.3	4472.8	4443.8
180°	4453.3	4453.3	4453.3	4453.3	4453.3



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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	8.04	8.74	9.13	9.83	11.33	4.00	4.71	5.09	5.80	7.29
	3H	9.71	10.34	10.81	11.44	12.96	5.18	5.81	6.28	6.91	8.42
	4H	10.31	10.92	11.43	12.02	13.54	5.62	6.22	6.74	7.32	8.84
	6H	10.73	11.29	11.86	12.39	13.92	5.94	6.49	7.06	7.59	9.12
	8H	10.86	11.38	11.99	12.50	14.03	6.03	6.55	7.15	7.67	9.19
	12H	10.92	11.42	12.05	12.53	14.08	6.07	6.56	7.20	7.68	9.22
4H	2H	8.04	8.64	9.16	9.74	11.26	4.58	5.18	5.70	6.28	7.80
	3H	9.86	10.36	10.99	11.49	13.02	5.92	6.42	7.05	7.55	9.08
	4H	10.55	11.01	11.68	12.13	13.68	6.46	6.92	7.60	8.04	9.59
	6H	11.07	11.46	12.20	12.60	14.14	6.88	7.27	8.02	8.41	9.95
	8H	11.24	11.61	12.38	12.74	14.30	7.00	7.37	8.14	8.50	10.06
	12H	11.33	11.67	12.49	12.81	14.37	7.06	7.40	8.22	8.54	10.10
8H	4H	10.51	10.88	11.65	12.01	13.57	6.74	7.10	7.88	8.23	9.80
	6H	11.08	11.38	12.24	12.55	14.11	7.25	7.56	8.41	8.73	10.29
	8H	11.30	11.56	12.46	12.71	14.29	7.44	7.71	8.61	8.86	10.44
	12H	11.43	11.67	12.60	12.81	14.43	7.56	7.79	8.73	8.94	10.55
12H	4H	10.46	10.79	11.61	11.93	13.50	6.74	7.07	7.89	8.21	9.78
	6H	11.05	11.32	12.22	12.47	14.05	7.30	7.57	8.47	8.72	10.30
	8H	11.27	11.50	12.44	12.65	14.27	7.51	7.74	8.68	8.89	10.50