

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: P904708

Luminaire Tested: DFN2DIP-TR4F0-080D090US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904708
REPORT IS A COMBINATION OF REPORTS P900468 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-080D090US830-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

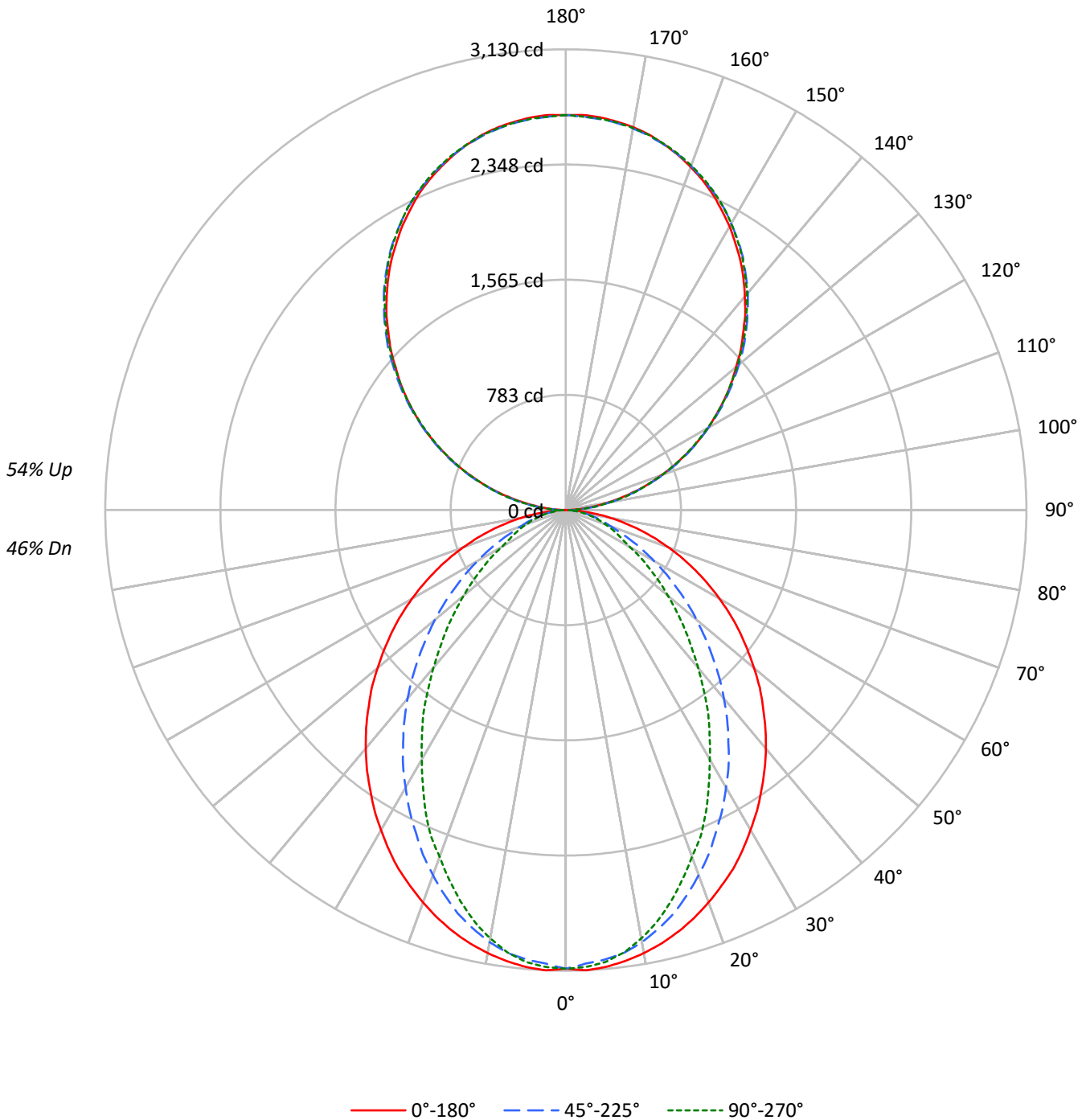
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13916.7 lumens
Efficiency: N/A
Efficacy: 97.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 142.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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	0
RCR																					
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	53	53	53	46	46	46	46
1	97	93	90	86	89	86	83	80	72	70	68	59	57	56	47	46	45	40	40	40	40
2	89	82	76	71	82	75	70	66	63	60	57	52	50	47	42	40	39	34	34	34	34
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	33	29	29	29	29
4	75	64	57	51	68	59	53	48	50	45	41	42	38	35	34	31	29	26	26	26	26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	22	22	22	22
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20	20	20	20
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21	18	18	18	18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16	16	16	16
9	51	39	32	27	47	36	30	25	31	26	22	26	22	20	22	19	17	15	15	15	15
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	17	15	13	13	13	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2476	2476	2476
5°	2480	2436	2452
10°	2455	2389	2372
15°	2421	2310	2249
20°	2377	2201	2097
25°	2331	2079	1951
30°	2270	1954	1766
35°	2209	1819	1603
40°	2148	1680	1416
45°	2077	1526	1247
50°	2003	1370	1081
55°	1926	1203	923
60°	1837	1029	759
65°	1735	852	683
70°	1611	687	618
75°	1455	605	562
80°	1230	508	487
85°	857	339	366

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2090 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	292.1	2.1
10°-20°	801.8	5.8
20°-30°	1125.7	8.1
30°-40°	1227.1	8.8
40°-50°	1127.8	8.1
50°-60°	885.7	6.4
60°-70°	576.5	4.1
70°-80°	296.8	2.1
80°-90°	83.4	0.6
90°-100°	166.0	1.2
100°-110°	527.5	3.8
110°-120°	902.7	6.5
120°-130°	1187.2	8.5
130°-140°	1332.5	9.6
140°-150°	1306.7	9.4
150°-160°	1096.1	7.9
160°-170°	726.9	5.2
170°-180°	254.1	1.8
0°-30°	2219.6	15.9
0°-40°	3446.7	24.8
0°-60°	5460.2	39.2
0°-90°	6416.9	46.1
90°-120°	1596.2	11.5
90°-150°	5422.6	39.0
90°-180°	7500.0	53.9
0°-180°	13916.7	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°	2	29	79	74	77	14
95°	118	141	145	145	141	131
105°	487	493	498	502	502	514
115°	906	919	915	912	906	896
125°	1318	1338	1331	1324	1322	1177
135°	1704	1729	1734	1732	1725	1317
145°	2069	2085	2098	2100	2092	1293
155°	2366	2372	2380	2391	2384	1089
165°	2574	2571	2571	2587	2576	726
175°	2678	2671	2667	2683	2669	254
180°	2683	2683	2683	2683	2683	



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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°	2.5	29.1	79.3	74.4	76.8
92.5°	50.1	68.0	70.4	72.8	72.8
95°	118.1	140.7	144.8	144.8	140.7
97.5°	196.5	217.5	226.5	226.5	226.5
100°	287.1	305.8	312.2	312.2	309.8
102.5°	382.6	396.3	405.2	407.6	405.2
105°	486.9	493.3	498.2	502.3	502.3
107.5°	590.4	600.1	600.1	601.7	590.4
110°	690.7	703.7	703.7	703.7	697.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	799.1	812.8	810.4	804.0	799.1
115°	905.9	918.8	914.7	912.4	905.9
117.5°	1011.8	1029.6	1018.3	1011.8	1005.3
120°	1118.6	1136.3	1118.6	1118.6	1111.3
122.5°	1215.6	1238.3	1227.0	1220.5	1215.6
125°	1317.6	1337.8	1331.3	1324.0	1321.6
127.5°	1417.0	1442.1	1433.2	1423.5	1417.0
130°	1510.0	1539.2	1535.1	1530.2	1521.4
132.5°	1614.4	1637.0	1638.6	1627.3	1620.9
135°	1704.1	1729.2	1734.1	1731.6	1725.2
137.5°	1804.4	1824.7	1828.7	1827.1	1817.4
140°	1892.6	1912.8	1924.1	1924.1	1915.2
142.5°	1983.2	2003.4	2009.9	2012.3	2003.4
145°	2069.0	2085.1	2098.0	2100.5	2091.6
147.5°	2145.8	2166.0	2175.7	2179.7	2170.9
150°	2225.1	2238.8	2247.7	2254.9	2247.7
152.5°	2295.4	2309.1	2320.4	2329.4	2320.4
155°	2365.8	2372.2	2379.5	2390.9	2383.6
157.5°	2426.4	2431.3	2435.3	2451.5	2440.1
160°	2480.6	2485.5	2487.9	2501.6	2491.9
162.5°	2530.7	2530.7	2533.2	2548.5	2537.2
165°	2573.6	2571.2	2571.2	2587.4	2576.1
167.5°	2612.4	2605.2	2605.2	2621.3	2610.0
170°	2641.6	2635.1	2632.7	2648.8	2635.1
172.5°	2661.7	2655.3	2652.9	2669.1	2655.3
175°	2678.0	2671.4	2666.6	2682.9	2669.1
177.5°	2686.8	2680.4	2675.5	2689.3	2675.5
180°	2682.9	2682.9	2682.9	2682.9	2682.9



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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	9.91	10.71	10.91	11.72	13.05	5.89	6.69	6.89	7.69	9.02
	3H	11.59	12.30	12.60	13.32	14.67	7.08	7.79	8.08	8.80	10.15
	4H	12.20	12.87	13.22	13.89	15.25	7.53	8.20	8.55	9.22	10.57
	6H	12.62	13.24	13.65	14.26	15.63	7.85	8.47	8.88	9.49	10.86
	8H	12.74	13.33	13.78	14.37	15.74	7.94	8.53	8.97	9.56	10.93
	12H	12.80	13.37	13.84	14.39	15.78	7.98	8.54	9.02	9.57	10.96
4H	2H	9.93	10.61	10.96	11.62	12.98	6.48	7.16	7.51	8.17	9.53
	3H	11.76	12.32	12.79	13.36	14.73	7.83	8.39	8.86	9.43	10.81
	4H	12.45	12.96	13.49	14.00	15.39	8.38	8.89	9.42	9.93	11.32
	6H	12.96	13.40	14.01	14.46	15.85	8.79	9.24	9.85	10.30	11.68
	8H	13.13	13.55	14.19	14.60	16.00	8.92	9.34	9.98	10.39	11.79
	12H	13.23	13.60	14.30	14.67	16.07	8.99	9.36	10.06	10.43	11.83
8H	4H	12.41	12.82	13.46	13.88	15.28	8.65	9.07	9.71	10.12	11.52
	6H	12.98	13.32	14.05	14.41	15.81	9.17	9.51	10.25	10.61	12.01
	8H	13.19	13.49	14.28	14.57	15.99	9.36	9.66	10.45	10.74	12.16
	12H	13.33	13.59	14.42	14.67	16.13	9.48	9.74	10.57	10.82	12.28
12H	4H	12.36	12.74	13.43	13.80	15.21	8.66	9.03	9.73	10.10	11.50
	6H	12.95	13.25	14.03	14.33	15.75	9.22	9.52	10.30	10.60	12.02
	8H	13.17	13.43	14.26	14.51	15.97	9.43	9.69	10.52	10.77	12.23