

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: P903142

Luminaire Tested: DFN2DIP-PN3F0-090D090US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903142
REPORT IS A COMBINATION OF REPORTS P899608 AND P896399
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-090D090US830-RLLFLL
Description: 3 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

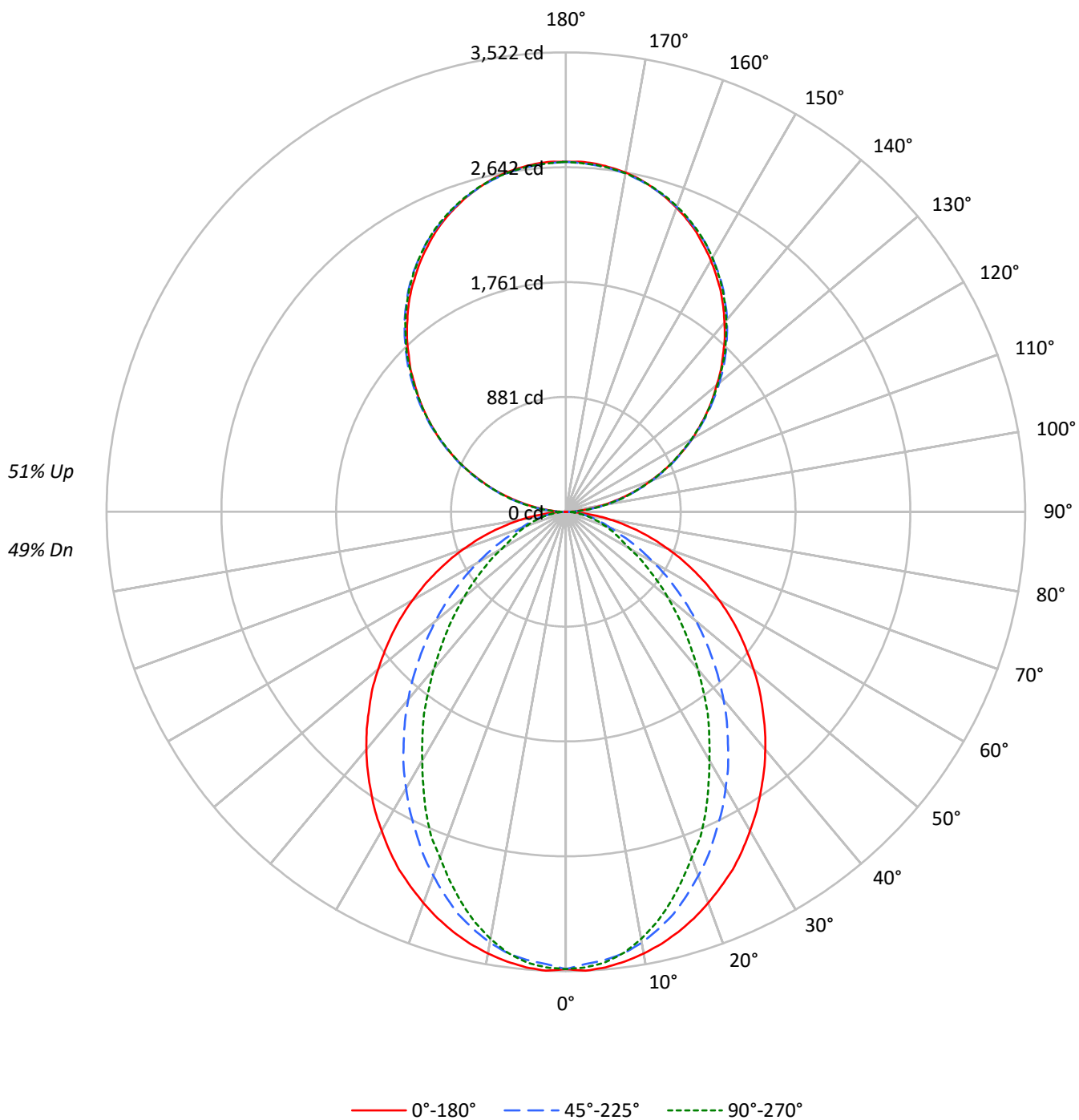
Lumens per Lamp: N/A
Luminaire Lumens: 14717.8 lumens
Efficiency: N/A
Efficacy: 89.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 164.2
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
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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4098	4098	4098
5°	4103	4031	4057
10°	4059	3949	3924
15°	4001	3815	3718
20°	3925	3633	3466
25°	3847	3429	3223
30°	3742	3219	2915
35°	3640	2995	2645
40°	3536	2763	2335
45°	3415	2506	2055
50°	3290	2247	1781
55°	3159	1970	1518
60°	3007	1682	1248
65°	2833	1388	1121
70°	2621	1115	1012
75°	2354	976	917
80°	1968	810	789
85°	1337	527	582

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3415 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	328.6	2.2
10°-20°	902.0	6.1
20°-30°	1266.4	8.6
30°-40°	1380.5	9.4
40°-50°	1268.8	8.6
50°-60°	996.5	6.8
60°-70°	648.6	4.4
70°-80°	333.9	2.3
80°-90°	92.9	0.6
90°-100°	166.0	1.1
100°-110°	527.5	3.6
110°-120°	902.7	6.1
120°-130°	1187.2	8.1
130°-140°	1332.5	9.1
140°-150°	1306.7	8.9
150°-160°	1096.1	7.4
160°-170°	726.9	4.9
170°-180°	254.1	1.7
0°-30°	2497.0	17.0
0°-40°	3877.5	26.3
0°-60°	6142.8	41.7
0°-90°	7218.1	49.0
90°-120°	1596.2	10.8
90°-150°	5422.6	36.8
90°-180°	7500.0	51.0
0°-180°	14717.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3506	3506	3506	3506	3506	
5°	3506	3490	3449	3477	3468	332
15°	3335	3300	3192	3132	3100	940
25°	3027	2925	2716	2586	2538	1392
35°	2608	2446	2167	1967	1897	1632
45°	2132	1920	1586	1361	1285	1647
55°	1621	1374	1031	841	781	1449
65°	1095	838	552	444	435	1085
75°	584	362	254	232	229	617
85°	136	70	60	60	60	156
90°	2	29	79	74	77	15
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°	3506.0	3506.0	3506.0	3506.0	3506.0
2.5°	3521.8	3506.0	3470.9	3503.0	3496.5
5°	3506.0	3490.1	3448.8	3477.3	3467.9
7.5°	3477.3	3458.5	3414.1	3426.5	3410.7
10°	3439.3	3417.1	3353.8	3344.0	3325.2
12.5°	3391.8	3363.3	3277.4	3258.6	3223.5
15°	3334.6	3299.7	3191.9	3131.6	3100.0
17.5°	3268.0	3217.2	3083.8	3014.2	2963.4
20°	3191.9	3128.3	2969.7	2890.6	2820.6
22.5°	3109.4	3036.4	2852.2	2744.5	2697.1
25°	3027.0	2925.3	2715.9	2586.0	2538.2
27.5°	2928.7	2820.6	2589.0	2439.9	2366.8
30°	2824.0	2703.1	2449.3	2287.7	2201.9
32.5°	2722.3	2576.2	2316.3	2125.8	2046.4
35°	2608.2	2446.3	2167.2	1967.3	1897.2
37.5°	2497.1	2322.4	2027.5	1808.4	1729.3
40°	2379.6	2189.4	1881.4	1656.2	1573.8
42.5°	2259.1	2056.2	1735.6	1500.7	1421.5
45°	2132.2	1919.5	1586.5	1360.9	1284.9
47.5°	2011.7	1786.5	1443.8	1218.2	1148.6
50°	1878.4	1653.1	1304.1	1085.0	1018.6
52.5°	1748.1	1510.1	1170.8	961.4	901.2
55°	1621.2	1373.8	1031.0	840.9	780.6
57.5°	1491.3	1237.5	907.6	729.8	679.0
60°	1357.9	1104.1	777.3	615.7	564.9
62.5°	1228.0	974.2	666.2	514.1	488.8
65°	1094.7	837.5	552.0	444.3	434.6
67.5°	967.8	710.6	444.3	390.1	380.7
70°	834.5	587.1	368.0	336.3	323.5
72.5°	707.6	472.6	307.6	282.4	276.1
75°	583.7	361.6	253.8	231.6	228.6
77.5°	460.1	256.8	199.9	187.2	180.8
80°	345.7	184.2	152.1	139.7	139.7
82.5°	241.0	123.9	104.7	98.3	98.3
85°	136.3	69.7	60.2	60.2	60.2
87.5°	50.8	25.3	25.3	22.2	22.2
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	11.92	12.74	12.89	13.72	15.01	7.88	8.71	8.86	9.69	10.97
	3H	13.59	14.32	14.57	15.31	16.62	9.07	9.80	10.05	10.79	12.10
	4H	14.19	14.89	15.19	15.88	17.20	9.51	10.21	10.51	11.20	12.52
	6H	14.61	15.25	15.62	16.25	17.58	9.83	10.47	10.83	11.47	12.80
	8H	14.73	15.34	15.75	16.36	17.68	9.91	10.52	10.93	11.54	12.86
	12H	14.79	15.37	15.81	16.38	17.73	9.95	10.53	10.97	11.54	12.89
4H	2H	11.93	12.63	12.94	13.62	14.94	8.47	9.17	9.48	10.16	11.48
	3H	13.75	14.33	14.77	15.36	16.69	9.82	10.39	10.83	11.42	12.75
	4H	14.44	14.97	15.46	15.99	17.34	10.36	10.89	11.38	11.90	13.26
	6H	14.95	15.40	15.98	16.44	17.79	10.77	11.23	11.80	12.26	13.62
	8H	15.12	15.55	16.15	16.58	17.94	10.90	11.32	11.93	12.35	13.72
	12H	15.21	15.60	16.26	16.64	18.01	10.96	11.34	12.01	12.39	13.76
8H	4H	14.41	14.83	15.44	15.86	17.23	10.64	11.06	11.67	12.09	13.46
	6H	14.97	15.32	16.02	16.39	17.75	11.15	11.50	12.20	12.57	13.93
	8H	15.18	15.49	16.24	16.55	17.93	11.33	11.64	12.39	12.70	14.08
	12H	15.31	15.58	16.38	16.64	18.06	11.45	11.72	12.51	12.77	14.19
12H	4H	14.36	14.74	15.41	15.79	17.16	10.64	11.02	11.69	12.07	13.44
	6H	14.94	15.25	16.00	16.31	17.69	11.19	11.50	12.25	12.56	13.94
	8H	15.16	15.43	16.22	16.48	17.91	11.40	11.67	12.46	12.72	14.15