

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: P916783

Luminaire Tested: DFN2DIP-PN3F0-090D090US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916783
REPORT IS A COMBINATION OF REPORTS P901128 AND P897955
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-090D090US930-RLLONL
Description: 3 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

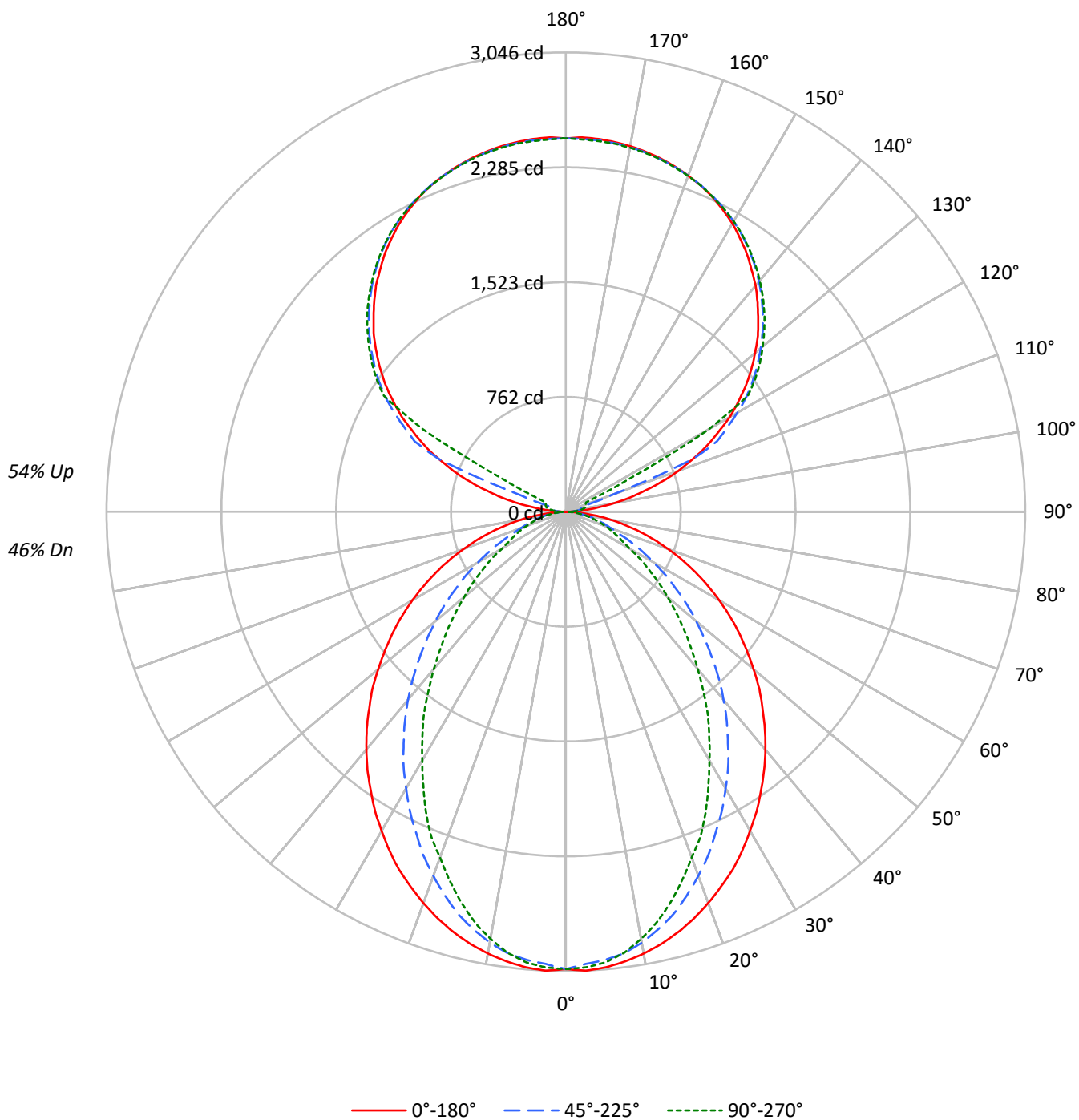
Lumens per Lamp: N/A
Luminaire Lumens: 13501.4 lumens
Efficiency: N/A
Efficacy: 82.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: General Diffuse

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

TEST NUMBER: P916783

CATALOG NUMBER: DFN2DIP-PN3F0-090D090US930-RLLONL

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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3545	3545	3545
5°	3549	3486	3510
10°	3511	3416	3394
15°	3461	3300	3216
20°	3395	3142	2998
25°	3327	2966	2788
30°	3237	2785	2522
35°	3149	2591	2288
40°	3059	2390	2020
45°	2954	2168	1777
50°	2846	1943	1540
55°	2733	1704	1313
60°	2601	1455	1079
65°	2450	1201	969
70°	2267	964	875
75°	2036	845	793
80°	1703	701	682
85°	1157	456	504

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2954 cd/sqm

TEST NUMBER: P916783

CATALOG NUMBER: DFN2DIP-PN3F0-090D090US930-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.2	2.1
10°-20°	780.3	5.8
20°-30°	1095.5	8.1
30°-40°	1194.1	8.8
40°-50°	1097.5	8.1
50°-60°	861.9	6.4
60°-70°	561.0	4.2
70°-80°	288.8	2.1
80°-90°	78.1	0.6
90°-100°	81.7	0.6
100°-110°	304.4	2.3
110°-120°	807.3	6.0
120°-130°	1339.0	9.9
130°-140°	1422.3	10.5
140°-150°	1321.9	9.8
150°-160°	1062.8	7.9
160°-170°	684.8	5.1
170°-180°	235.7	1.7
0°-30°	2159.9	16.0
0°-40°	3354.0	24.8
0°-60°	5313.5	39.4
0°-90°	6241.4	46.2
90°-120°	1193.4	8.8
90°-150°	5276.6	39.1
90°-180°	7260.0	53.8
0°-180°	13501.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3033	3033	3033	3033	3033	
5°	3033	3019	2983	3008	3000	288
15°	2884	2854	2761	2709	2682	813
25°	2618	2530	2349	2237	2196	1204
35°	2256	2116	1875	1702	1641	1412
45°	1844	1660	1372	1177	1111	1424
55°	1402	1188	892	727	675	1253
65°	947	724	478	384	376	939
75°	505	313	220	200	198	534
85°	118	60	52	52	52	135
90°	2	22	36	45	48	13
95°	116	57	70	79	77	138
105°	545	599	109	129	136	582
115°	1030	1061	1106	276	147	1014
125°	1457	1480	1514	1527	1532	1299
135°	1803	1831	1847	1866	1862	1393
145°	2091	2089	2120	2132	2123	1308
155°	2303	2287	2308	2319	2304	1061
165°	2426	2416	2421	2433	2421	685
175°	2482	2469	2473	2485	2467	236
180°	2476	2476	2476	2476	2476	

TEST NUMBER: P916783

CATALOG NUMBER: DFN2DIP-PN3F0-090D090US930-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3032.7	3032.7	3032.7	3032.7	3032.7
2.5°	3046.4	3032.7	3002.3	3030.1	3024.5
5°	3032.7	3019.0	2983.2	3007.9	2999.7
7.5°	3007.9	2991.6	2953.2	2963.9	2950.2
10°	2975.0	2955.8	2901.1	2892.6	2876.3
12.5°	2933.9	2909.2	2835.0	2818.6	2788.3
15°	2884.4	2854.2	2761.0	2708.8	2681.5
17.5°	2826.8	2782.9	2667.5	2607.2	2563.3
20°	2761.0	2706.0	2568.8	2500.4	2439.8
22.5°	2689.7	2626.5	2467.2	2374.0	2333.0
25°	2618.3	2530.4	2349.3	2236.9	2195.5
27.5°	2533.3	2439.8	2239.5	2110.5	2047.3
30°	2442.7	2338.2	2118.6	1978.9	1904.6
32.5°	2354.7	2228.4	2003.6	1838.8	1770.1
35°	2256.1	2116.0	1874.6	1701.7	1641.1
37.5°	2160.0	2008.9	1753.8	1564.2	1495.8
40°	2058.4	1893.9	1627.4	1432.6	1361.3
42.5°	1954.1	1778.6	1501.3	1298.1	1229.6
45°	1844.4	1660.4	1372.3	1177.2	1111.4
47.5°	1740.1	1545.3	1248.9	1053.8	993.5
50°	1624.8	1430.0	1128.0	938.5	881.1
52.5°	1512.1	1306.3	1012.8	831.6	779.5
55°	1402.3	1188.3	891.9	727.4	675.2
57.5°	1290.0	1070.4	785.1	631.3	587.3
60°	1174.6	955.0	672.4	532.6	488.6
62.5°	1062.3	842.7	576.3	444.7	422.8
65°	946.9	724.5	477.5	384.3	375.9
67.5°	837.1	614.7	384.3	337.5	329.3
70°	721.9	507.8	318.3	290.9	279.8
72.5°	612.0	408.8	266.1	244.3	238.8
75°	504.9	312.7	219.6	200.3	197.7
77.5°	398.0	222.2	172.9	161.9	156.4
80°	299.1	159.3	131.6	120.8	120.8
82.5°	208.5	107.1	90.6	85.0	85.0
85°	117.9	60.3	52.1	52.1	52.1
87.5°	43.9	21.8	21.8	19.2	19.2
90°	1.7	21.5	35.7	44.9	48.3
92.5°	44.9	37.7	43.0	46.6	48.3
95°	116.4	57.2	69.8	78.9	77.0
97.5°	209.6	62.8	91.3	96.8	98.5
100°	317.2	71.7	102.2	116.4	120.0
102.5°	435.4	431.9	105.7	125.3	130.9
105°	544.7	598.6	109.3	129.0	136.2
107.5°	672.0	716.6	113.0	132.6	139.8
110°	793.9	831.4	313.6	134.4	141.5

TEST NUMBER: P916783

CATALOG NUMBER: DFN2DIP-PN3F0-090D090US930-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	908.6	940.7	910.3	137.9	143.4
115°	1030.3	1060.7	1105.6	276.0	147.0
117.5°	1136.0	1171.8	1202.4	946.1	476.6
120°	1254.3	1281.2	1313.5	1335.0	1093.1
122.5°	1354.6	1383.3	1419.3	1429.9	1431.8
125°	1456.7	1480.1	1514.2	1526.7	1532.0
127.5°	1549.9	1575.0	1602.1	1619.9	1621.6
130°	1637.8	1666.6	1686.1	1705.8	1704.2
132.5°	1727.4	1750.8	1770.3	1786.6	1784.9
135°	1802.7	1831.4	1847.4	1865.5	1861.9
137.5°	1881.5	1902.9	1921.0	1938.9	1933.6
140°	1958.4	1972.9	1992.5	2008.7	1999.8
142.5°	2023.2	2035.7	2058.9	2073.1	2064.3
145°	2091.2	2089.3	2119.8	2132.3	2123.4
147.5°	2150.2	2144.9	2175.3	2184.3	2177.2
150°	2207.7	2195.1	2223.8	2234.4	2225.5
152.5°	2255.9	2241.7	2268.5	2279.3	2266.8
155°	2302.6	2286.6	2308.0	2318.7	2304.4
157.5°	2340.2	2326.0	2342.1	2354.7	2340.2
160°	2372.5	2361.7	2372.5	2383.2	2370.6
162.5°	2401.1	2390.4	2399.3	2411.9	2395.8
165°	2426.2	2415.5	2420.9	2433.4	2420.9
167.5°	2446.0	2435.1	2440.6	2453.2	2437.0
170°	2462.1	2451.3	2454.9	2467.4	2451.3
172.5°	2472.8	2462.1	2465.7	2478.3	2462.1
175°	2481.7	2469.1	2472.8	2485.3	2467.4
177.5°	2485.3	2472.8	2474.7	2487.2	2471.1
180°	2476.4	2476.4	2476.4	2476.4	2476.4

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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	11.14	11.94	12.14	12.94	14.27	7.11	7.91	8.10	8.91	10.24
	3H	12.81	13.53	13.82	14.54	15.89	8.29	9.00	9.29	10.02	11.36
	4H	13.41	14.09	14.43	15.11	16.46	8.73	9.41	9.75	10.42	11.78
	6H	13.83	14.45	14.86	15.47	16.84	9.05	9.67	10.08	10.69	12.06
	8H	13.95	14.54	14.99	15.58	16.94	9.13	9.73	10.17	10.76	12.13
	12H	14.01	14.57	15.05	15.60	16.99	9.17	9.74	10.21	10.77	12.15
4H	2H	11.15	11.83	12.18	12.85	14.20	7.70	8.37	8.72	9.39	10.74
	3H	12.97	13.54	14.01	14.58	15.95	9.04	9.60	10.07	10.64	12.01
	4H	13.66	14.18	14.70	15.21	16.60	9.58	10.09	10.62	11.13	12.52
	6H	14.17	14.61	15.22	15.67	17.06	9.99	10.43	11.04	11.49	12.88
	8H	14.34	14.75	15.39	15.80	17.21	10.11	10.53	11.17	11.58	12.98
	12H	14.43	14.80	15.50	15.87	17.27	10.17	10.55	11.24	11.61	13.02
8H	4H	13.62	14.04	14.68	15.09	16.49	9.85	10.27	10.90	11.32	12.72
	6H	14.18	14.52	15.26	15.62	17.02	10.36	10.70	11.44	11.80	13.20
	8H	14.40	14.69	15.48	15.77	17.19	10.55	10.85	11.63	11.92	13.34
	12H	14.53	14.79	15.61	15.86	17.32	10.66	10.92	11.75	12.00	13.46
12H	4H	13.58	13.95	14.64	15.01	16.42	9.86	10.23	10.92	11.29	12.70
	6H	14.16	14.46	15.24	15.53	16.95	10.41	10.71	11.49	11.79	13.20
	8H	14.37	14.64	15.46	15.71	17.17	10.61	10.88	11.70	11.95	13.41