

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: P922514

Luminaire Tested: DFN2DIP-PN4F0-110D090US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922514
REPORT IS A COMBINATION OF REPORTS P899714 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D090US940-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

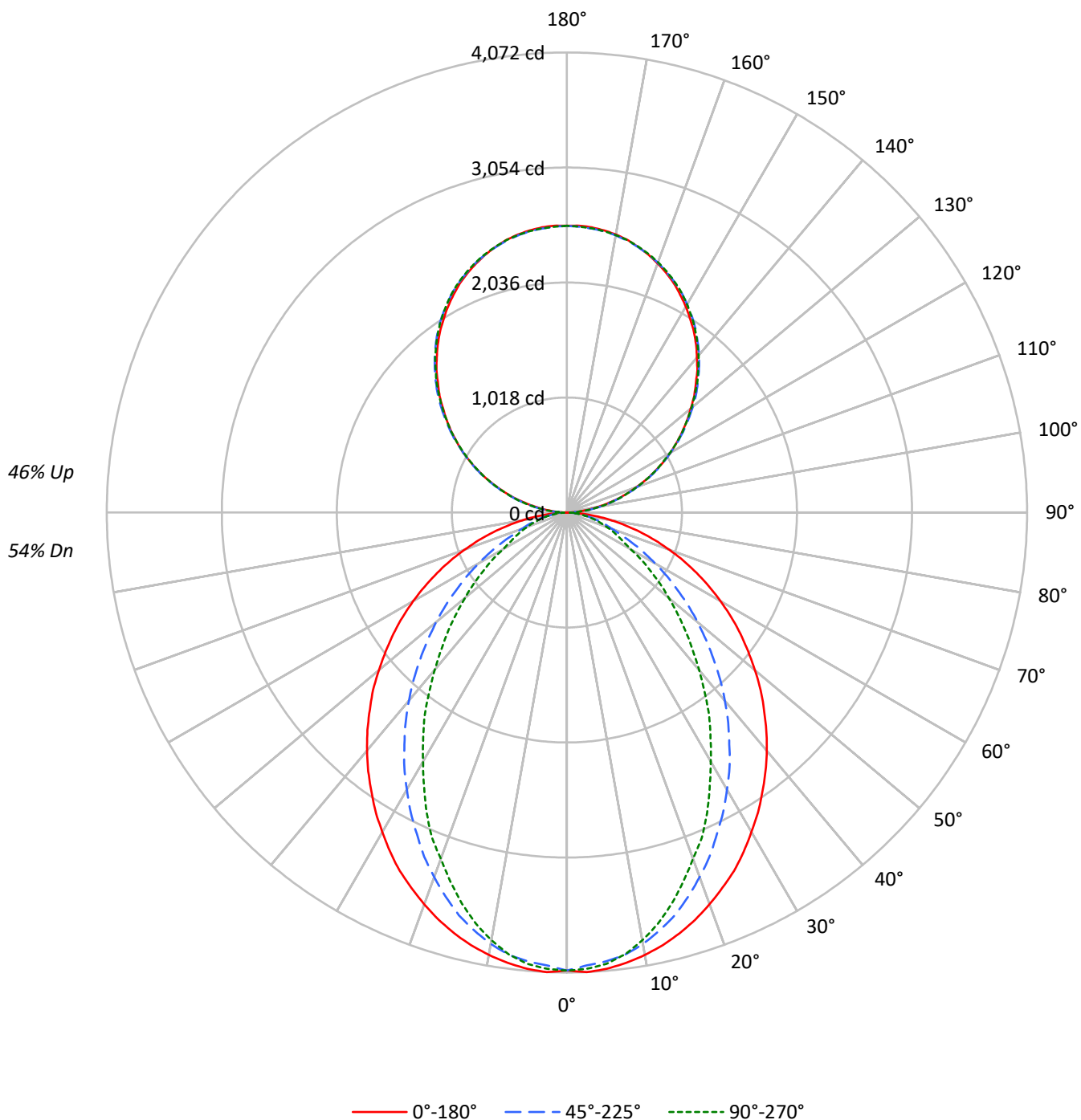
Lumens per Lamp: N/A
Luminaire Lumens: 15440.0 lumens
Efficiency: N/A
Efficacy: 85.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 180.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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	108	108	108	108		100	100	100	100		86	86	86		72	72	72		60	60	60
1	99	95	91	88		92	88	85	82		76	73	71		64	63	61		54	53	52
2	91	84	78	73		84	78	73	68		67	63	60		57	54	52		48	46	44
3	83	74	67	61		77	69	63	58		60	55	51		51	47	45		43	40	38
4	76	66	58	52		71	62	55	49		53	48	44		46	42	39		39	36	33
5	70	59	51	45		65	55	48	43		48	42	38		41	37	34		35	32	29
6	65	53	45	39		60	50	43	38		43	38	34		38	33	30		32	29	26
7	60	48	40	35		56	45	38	33		40	34	30		34	30	27		29	26	23
8	56	44	36	31		52	41	34	30		36	31	27		32	27	24		27	24	21
9	52	40	33	28		49	38	31	27		33	28	24		29	25	22		25	22	19
10	49	37	30	25		45	35	28	24		31	26	22		27	23	20		23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2959	2959	2959
5°	2964	2913	2931
10°	2935	2856	2837
15°	2894	2762	2690
20°	2841	2632	2509
25°	2786	2487	2335
30°	2713	2337	2113
35°	2641	2177	1919
40°	2567	2011	1696
45°	2482	1826	1494
50°	2394	1640	1296
55°	2302	1441	1107
60°	2196	1233	911
65°	2073	1022	821
70°	1925	824	744
75°	1739	728	678
80°	1469	612	590
85°	1024	410	447

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2482 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.9	2.5
10°-20°	1043.0	6.8
20°-30°	1464.4	9.5
30°-40°	1596.2	10.3
40°-50°	1467.1	9.5
50°-60°	1152.2	7.5
60°-70°	750.0	4.9
70°-80°	386.0	2.5
80°-90°	105.8	0.7
90°-100°	157.1	1.0
100°-110°	499.0	3.2
110°-120°	854.0	5.5
120°-130°	1123.1	7.3
130°-140°	1260.7	8.2
140°-150°	1236.2	8.0
150°-160°	1037.0	6.7
160°-170°	687.7	4.5
170°-180°	240.4	1.6
0°-30°	2887.3	18.7
0°-40°	4483.6	29.0
0°-60°	7102.9	46.0
0°-90°	8344.7	54.0
90°-120°	1510.1	9.8
90°-150°	5130.1	33.2
90°-180°	7095.0	46.0
0°-180°	15440.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4054	4054	4054	4054	4054	
5°	4054	4036	3988	4021	4010	384
15°	3856	3815	3691	3621	3584	1087
25°	3500	3382	3140	2990	2935	1610
35°	3016	2829	2506	2275	2194	1888
45°	2466	2220	1834	1574	1486	1904
55°	1875	1588	1192	972	903	1675
65°	1266	968	638	514	502	1255
75°	675	418	294	268	264	714
85°	158	81	70	70	70	181
90°	2	28	75	70	73	15
95°	112	133	137	137	133	124
105°	461	467	471	475	475	486
115°	857	869	865	863	857	848
125°	1246	1266	1260	1253	1250	1114
135°	1612	1636	1641	1638	1632	1246
145°	1957	1973	1985	1987	1979	1223
155°	2238	2244	2251	2262	2255	1030
165°	2435	2432	2432	2448	2437	687
175°	2534	2527	2523	2538	2525	241
180°	2538	2538	2538	2538	2538	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4054.0	4054.0	4054.0	4054.0	4054.0
2.5°	4072.3	4054.0	4013.5	4050.5	4043.1
5°	4054.0	4035.7	3987.8	4020.9	4010.0
7.5°	4020.9	3999.1	3947.7	3962.1	3943.8
10°	3976.9	3951.2	3878.0	3866.7	3845.0
12.5°	3922.0	3888.9	3789.7	3767.8	3727.3
15°	3855.8	3815.4	3690.8	3621.1	3584.5
17.5°	3778.8	3720.0	3565.9	3485.2	3426.5
20°	3690.8	3617.2	3433.9	3342.4	3261.4
22.5°	3595.5	3510.9	3298.1	3173.5	3118.6
25°	3500.1	3382.5	3140.4	2990.2	2934.9
27.5°	3386.4	3261.4	2993.7	2821.2	2736.7
30°	3265.4	3125.6	2832.2	2645.3	2546.0
32.5°	3147.8	2978.8	2678.3	2458.1	2366.2
35°	3015.9	2828.6	2506.0	2274.8	2193.8
37.5°	2887.4	2685.4	2344.4	2091.0	1999.6
40°	2751.6	2531.7	2175.5	1915.0	1819.7
42.5°	2612.2	2377.5	2007.0	1735.3	1643.8
45°	2465.5	2219.5	1834.5	1573.7	1485.8
47.5°	2326.1	2065.7	1669.5	1408.6	1328.1
50°	2171.9	1911.6	1508.0	1254.5	1177.9
52.5°	2021.3	1746.1	1353.8	1111.7	1042.0
55°	1874.6	1588.5	1192.2	972.3	902.7
57.5°	1724.4	1430.8	1049.4	843.9	785.1
60°	1570.2	1276.8	898.8	711.9	653.2
62.5°	1420.0	1126.5	770.3	594.4	565.2
65°	1265.8	968.4	638.4	513.8	502.5
67.5°	1119.1	821.7	513.8	451.1	440.2
70°	964.9	678.9	425.4	388.9	374.1
72.5°	818.1	546.5	355.8	326.5	319.1
75°	674.9	418.0	293.5	267.8	264.3
77.5°	532.1	297.0	231.2	216.4	209.0
80°	399.8	212.9	175.9	161.6	161.6
82.5°	278.7	143.2	121.1	113.7	113.7
85°	157.7	80.6	69.6	69.6	69.6
87.5°	58.8	29.2	29.2	25.7	25.7
90°	2.3	27.6	75.0	70.4	72.7
92.5°	47.4	64.3	66.6	68.8	68.8
95°	111.7	133.1	137.0	137.0	133.1
97.5°	185.9	205.8	214.3	214.3	214.3
100°	271.6	289.3	295.3	295.3	293.1
102.5°	361.9	375.0	383.3	385.7	383.3
105°	460.7	466.7	471.4	475.2	475.2
107.5°	558.6	567.8	567.8	569.3	558.6
110°	653.4	665.8	665.8	665.8	659.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	756.0	769.0	766.7	760.6	756.0
115°	857.0	869.2	865.4	863.2	857.0
117.5°	957.3	974.1	963.4	957.3	951.1
120°	1058.3	1075.0	1058.3	1058.3	1051.3
122.5°	1150.0	1171.5	1160.8	1154.7	1150.0
125°	1246.5	1265.6	1259.5	1252.6	1250.4
127.5°	1340.6	1364.3	1355.9	1346.8	1340.6
130°	1428.6	1456.2	1452.3	1447.7	1439.3
132.5°	1527.3	1548.7	1550.2	1539.5	1533.5
135°	1612.2	1635.9	1640.6	1638.3	1632.2
137.5°	1707.1	1726.3	1730.1	1728.6	1719.4
140°	1790.6	1809.6	1820.3	1820.3	1812.0
142.5°	1876.2	1895.3	1901.5	1903.8	1895.3
145°	1957.4	1972.6	1984.9	1987.2	1978.8
147.5°	2030.1	2049.2	2058.3	2062.2	2053.8
150°	2105.1	2118.1	2126.5	2133.3	2126.5
152.5°	2171.6	2184.6	2195.3	2203.8	2195.3
155°	2238.2	2244.3	2251.2	2261.9	2255.0
157.5°	2295.5	2300.2	2304.0	2319.2	2308.5
160°	2346.8	2351.4	2353.8	2366.7	2357.5
162.5°	2394.2	2394.2	2396.6	2411.1	2400.4
165°	2434.8	2432.5	2432.5	2447.8	2437.1
167.5°	2471.6	2464.7	2464.7	2479.9	2469.2
170°	2499.1	2493.0	2490.7	2506.0	2493.0
172.5°	2518.2	2512.1	2509.8	2525.1	2512.1
175°	2533.5	2527.4	2522.8	2538.2	2525.1
177.5°	2541.9	2535.8	2531.2	2544.2	2531.2
180°	2538.2	2538.2	2538.2	2538.2	2538.2

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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	11.29	12.16	12.22	13.10	14.31	7.26	8.12	8.19	9.06	10.28
	3H	12.98	13.75	13.92	14.70	15.94	8.45	9.22	9.39	10.17	11.41
	4H	13.59	14.32	14.54	15.27	16.52	8.90	9.63	9.86	10.59	11.84
	6H	14.01	14.69	14.98	15.65	16.91	9.23	9.90	10.19	10.86	12.12
	8H	14.14	14.78	15.11	15.76	17.02	9.32	9.96	10.29	10.93	12.19
	12H	14.21	14.81	15.18	15.79	17.07	9.36	9.97	10.34	10.94	12.22
4H	2H	11.31	12.05	12.28	13.00	14.25	7.86	8.59	8.82	9.54	10.79
	3H	13.15	13.76	14.12	14.74	16.00	9.21	9.82	10.18	10.81	12.07
	4H	13.85	14.40	14.82	15.38	16.67	9.76	10.32	10.74	11.30	12.58
	6H	14.37	14.84	15.36	15.84	17.13	10.19	10.66	11.18	11.66	12.95
	8H	14.54	14.99	15.54	15.98	17.28	10.32	10.76	11.31	11.76	13.05
	12H	14.64	15.04	15.65	16.05	17.36	10.38	10.78	11.39	11.80	13.10
8H	4H	13.82	14.26	14.81	15.26	16.56	10.05	10.49	11.04	11.49	12.79
	6H	14.39	14.75	15.40	15.79	17.09	10.57	10.94	11.59	11.97	13.27
	8H	14.61	14.93	15.63	15.95	17.27	10.76	11.08	11.79	12.11	13.42
	12H	14.75	15.03	15.78	16.05	17.41	10.88	11.17	11.91	12.19	13.55
12H	4H	13.77	14.17	14.78	15.18	16.49	10.05	10.45	11.06	11.47	12.77
	6H	14.36	14.69	15.39	15.71	17.03	10.62	10.94	11.64	11.97	13.28
	8H	14.59	14.87	15.61	15.89	17.25	10.83	11.12	11.86	12.14	13.50