

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: P924172

Luminaire Tested: DFN2DIP-4P4F0-060D030US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924172
REPORT IS A COMBINATION OF REPORTS P899086 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-060D030US950-RLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

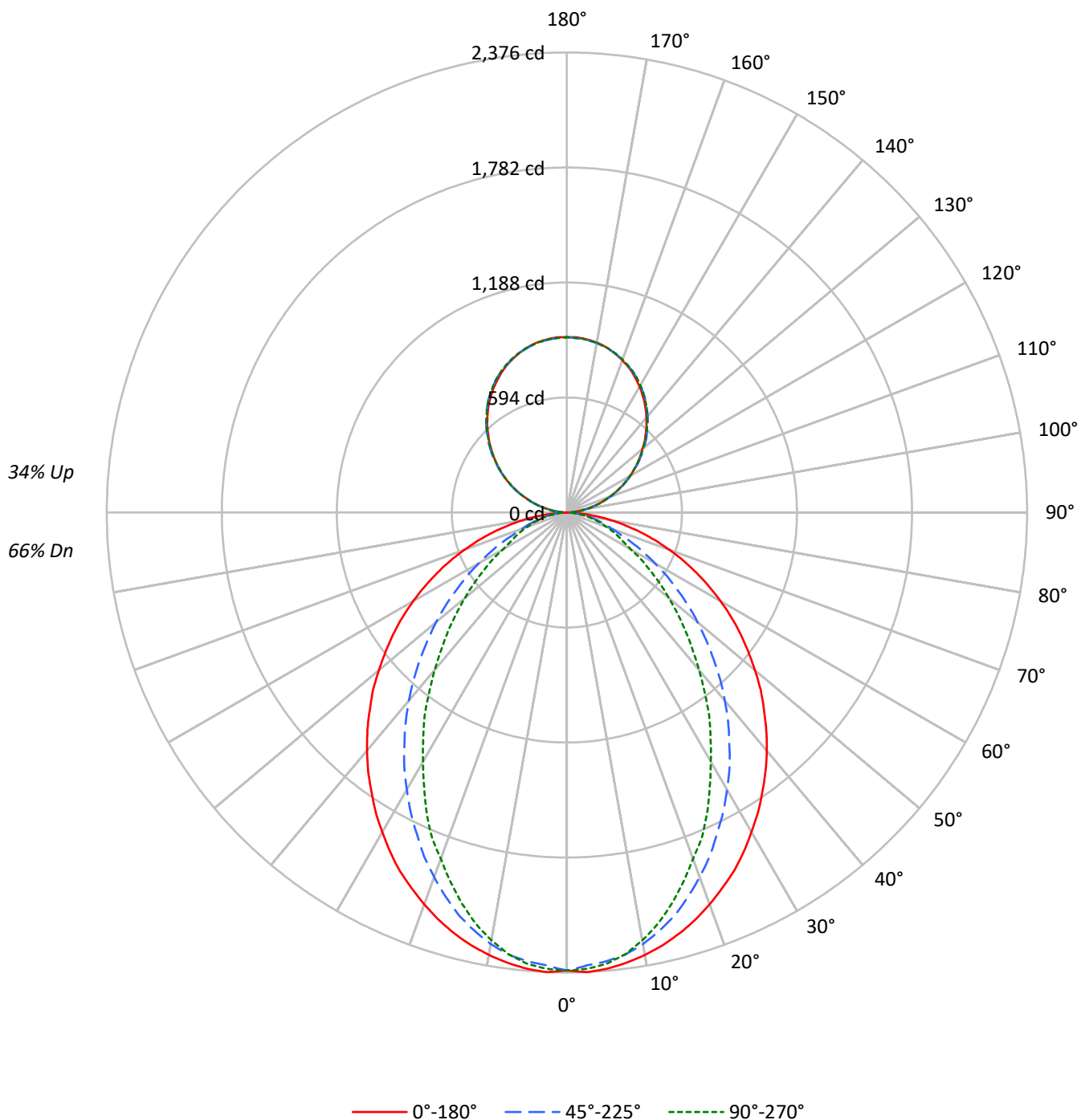
Lumens per Lamp: N/A
Luminaire Lumens: 7398.2 lumens
Efficiency: N/A
Efficacy: 87.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 84.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71
1	102	98	94	91	96	92	89	86	82	79	77	72	70	69	63	62	61
2	93	86	80	75	88	81	76	72	72	68	65	64	61	58	57	54	52
3	86	76	69	63	80	72	66	61	65	59	55	57	53	50	51	48	45
4	79	68	60	54	74	65	58	52	58	52	48	52	47	44	46	42	40
5	73	61	53	47	68	58	51	45	52	46	42	47	42	38	42	38	35
6	67	55	47	41	63	52	45	40	47	41	37	42	38	34	38	34	31
7	62	50	42	37	59	48	40	35	43	37	33	39	34	30	35	31	28
8	58	46	38	33	55	44	37	32	40	34	29	36	31	27	32	28	25
9	54	42	35	29	51	40	33	29	36	31	27	33	28	25	30	26	23
10	51	39	31	27	48	37	30	26	34	28	24	31	26	23	28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1535	1535	1535
5°	1537	1511	1521
10°	1522	1482	1472
15°	1501	1433	1396
20°	1474	1366	1302
25°	1445	1291	1212
30°	1407	1214	1097
35°	1370	1131	997
40°	1332	1045	881
45°	1288	949	776
50°	1243	853	674
55°	1195	750	576
60°	1140	642	474
65°	1077	532	428
70°	1001	430	388
75°	904	380	354
80°	765	321	309
85°	535	216	236

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1288 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.7	3.0
10°-20°	608.7	8.2
20°-30°	854.5	11.6
30°-40°	931.5	12.6
40°-50°	856.2	11.6
50°-60°	672.4	9.1
60°-70°	437.7	5.9
70°-80°	225.3	3.0
80°-90°	60.1	0.8
90°-100°	56.0	0.8
100°-110°	178.0	2.4
110°-120°	304.6	4.1
120°-130°	400.5	5.4
130°-140°	449.6	6.1
140°-150°	440.9	6.0
150°-160°	369.8	5.0
160°-170°	245.3	3.3
170°-180°	85.7	1.2
0°-30°	1684.9	22.8
0°-40°	2616.4	35.4
0°-60°	4144.9	56.0
0°-90°	4868.0	65.8
90°-120°	538.5	7.3
90°-150°	1829.5	24.7
90°-180°	2530.0	34.2
0°-180°	7398.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2366	2366	2366	2366	2366	
5°	2366	2355	2327	2346	2340	224
15°	2250	2226	2154	2113	2092	634
25°	2042	1974	1833	1745	1713	939
35°	1760	1651	1462	1327	1280	1102
45°	1439	1295	1071	918	867	1111
55°	1094	927	696	567	527	978
65°	739	565	372	300	293	732
75°	394	244	171	156	154	417
85°	92	47	41	41	41	106
90°	1	10	27	25	26	7
95°	40	48	49	49	48	44
105°	164	166	168	169	169	173
115°	306	310	309	308	306	302
125°	445	451	449	447	446	397
135°	575	583	585	584	582	444
145°	698	704	708	709	706	436
155°	798	800	803	807	804	367
165°	868	868	868	873	869	245
175°	904	901	900	905	900	86
180°	905	905	905	905	905	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2365.7	2365.7	2365.7	2365.7	2365.7
2.5°	2376.4	2365.7	2342.1	2363.6	2359.3
5°	2365.7	2355.0	2327.1	2346.5	2340.1
7.5°	2346.5	2333.7	2303.7	2312.1	2301.4
10°	2320.7	2305.7	2263.1	2256.5	2243.7
12.5°	2288.7	2269.4	2211.5	2198.8	2175.1
15°	2250.1	2226.4	2153.8	2113.1	2091.7
17.5°	2205.2	2170.8	2080.9	2033.8	1999.6
20°	2153.8	2110.8	2003.9	1950.5	1903.2
22.5°	2098.1	2048.8	1924.6	1851.9	1819.9
25°	2042.5	1973.9	1832.6	1745.0	1712.7
27.5°	1976.2	1903.2	1747.0	1646.3	1597.1
30°	1905.5	1824.0	1652.7	1543.7	1485.8
32.5°	1836.9	1738.4	1563.0	1434.4	1380.8
35°	1759.9	1650.7	1462.4	1327.4	1280.2
37.5°	1685.0	1567.0	1368.1	1220.3	1166.8
40°	1605.7	1477.4	1269.5	1117.5	1061.9
42.5°	1524.4	1387.4	1171.1	1012.6	959.2
45°	1438.7	1295.2	1070.6	918.3	867.0
47.5°	1357.4	1205.5	974.2	822.1	775.0
50°	1267.5	1115.5	880.0	732.1	687.4
52.5°	1179.5	1019.0	790.0	648.7	608.1
55°	1094.0	927.0	695.8	567.4	526.7
57.5°	1006.3	834.9	612.4	492.5	458.1
60°	916.3	745.1	524.5	415.5	381.1
62.5°	828.6	657.4	449.5	346.9	329.8
65°	738.7	565.1	372.5	299.8	293.3
67.5°	653.0	479.5	299.8	263.3	256.9
70°	563.1	396.1	248.2	227.0	218.3
72.5°	477.5	318.9	207.6	190.6	186.2
75°	393.9	243.9	171.2	156.3	154.3
77.5°	310.5	173.3	134.9	126.3	122.0
80°	233.3	124.2	102.7	94.3	94.3
82.5°	162.7	83.6	70.6	66.3	66.3
85°	92.0	47.0	40.6	40.6	40.6
87.5°	34.3	17.1	17.1	15.0	15.0
90°	0.9	9.8	26.7	25.1	25.9
92.5°	16.9	22.9	23.8	24.5	24.5
95°	39.9	47.5	48.8	48.8	47.5
97.5°	66.3	73.4	76.4	76.4	76.4
100°	96.8	103.1	105.3	105.3	104.6
102.5°	129.1	133.8	136.7	137.6	136.7
105°	164.3	166.5	168.1	169.4	169.4
107.5°	199.2	202.4	202.4	203.0	199.2
110°	233.1	237.5	237.5	237.5	235.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	269.6	274.3	273.4	271.2	269.6
115°	305.7	310.0	308.6	307.9	305.7
117.5°	341.3	347.4	343.5	341.3	339.1
120°	377.4	383.4	377.4	377.4	374.9
122.5°	410.1	417.8	413.9	411.7	410.1
125°	444.6	451.3	449.1	446.7	445.9
127.5°	478.0	486.5	483.6	480.2	478.0
130°	509.4	519.3	517.9	516.3	513.3
132.5°	544.6	552.3	552.8	549.0	546.8
135°	575.0	583.4	585.1	584.2	582.0
137.5°	608.7	615.6	617.0	616.5	613.1
140°	638.5	645.4	649.2	649.2	646.1
142.5°	669.1	675.9	678.1	679.0	675.9
145°	698.0	703.5	707.9	708.6	705.7
147.5°	724.0	730.8	734.0	735.4	732.4
150°	750.7	755.4	758.3	760.8	758.3
152.5°	774.5	779.0	782.9	785.9	782.9
155°	798.2	800.3	802.8	806.6	804.2
157.5°	818.6	820.2	821.7	827.1	823.3
160°	836.9	838.6	839.4	844.0	840.8
162.5°	853.8	853.8	854.7	859.8	856.0
165°	868.3	867.5	867.5	872.9	869.1
167.5°	881.4	878.9	878.9	884.4	880.5
170°	891.2	889.0	888.3	893.7	889.0
172.5°	898.0	895.9	895.0	900.5	895.9
175°	903.5	901.3	899.7	905.2	900.5
177.5°	906.5	904.3	902.7	907.3	902.7
180°	905.2	905.2	905.2	905.2	905.2

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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	10.01	10.99	10.83	11.83	12.85	5.98	6.95	6.79	7.79	8.82
	3H	11.71	12.58	12.54	13.43	14.48	7.18	8.05	8.01	8.90	9.95
	4H	12.33	13.15	13.17	14.00	15.07	7.64	8.46	8.48	9.31	10.38
	6H	12.76	13.52	13.62	14.38	15.46	7.97	8.73	8.82	9.58	10.67
	8H	12.90	13.62	13.76	14.49	15.58	8.06	8.78	8.93	9.66	10.74
	12H	12.96	13.65	13.84	14.52	15.63	8.11	8.80	8.98	9.67	10.77
4H	2H	10.05	10.88	10.90	11.73	12.79	6.59	7.42	7.44	8.27	9.34
	3H	11.90	12.58	12.76	13.47	14.55	7.96	8.64	8.82	9.53	10.61
	4H	12.60	13.22	13.48	14.11	15.22	8.51	9.14	9.39	10.02	11.13
	6H	13.13	13.67	14.02	14.57	15.69	8.94	9.48	9.83	10.38	11.50
	8H	13.31	13.81	14.20	14.71	15.84	9.08	9.58	9.97	10.48	11.60
	12H	13.42	13.87	14.33	14.79	15.92	9.15	9.60	10.06	10.52	11.65
8H	4H	12.58	13.08	13.47	13.98	15.11	8.81	9.31	9.70	10.21	11.33
	6H	13.16	13.57	14.08	14.51	15.64	9.33	9.75	10.25	10.69	11.82
	8H	13.38	13.75	14.31	14.68	15.82	9.53	9.89	10.46	10.83	11.97
	12H	13.53	13.85	14.46	14.78	15.97	9.65	9.98	10.59	10.90	12.10
12H	4H	12.54	12.99	13.45	13.91	15.04	8.82	9.27	9.73	10.19	11.32
	6H	13.13	13.50	14.06	14.44	15.58	9.39	9.75	10.31	10.69	11.83
	8H	13.37	13.69	14.30	14.61	15.81	9.60	9.93	10.54	10.85	12.05

END OF REPORT