

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: P919768

Luminaire Tested: DFN2DIP-PN4F0-110D050US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919768
REPORT IS A COMBINATION OF REPORTS P899641 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D050US935-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

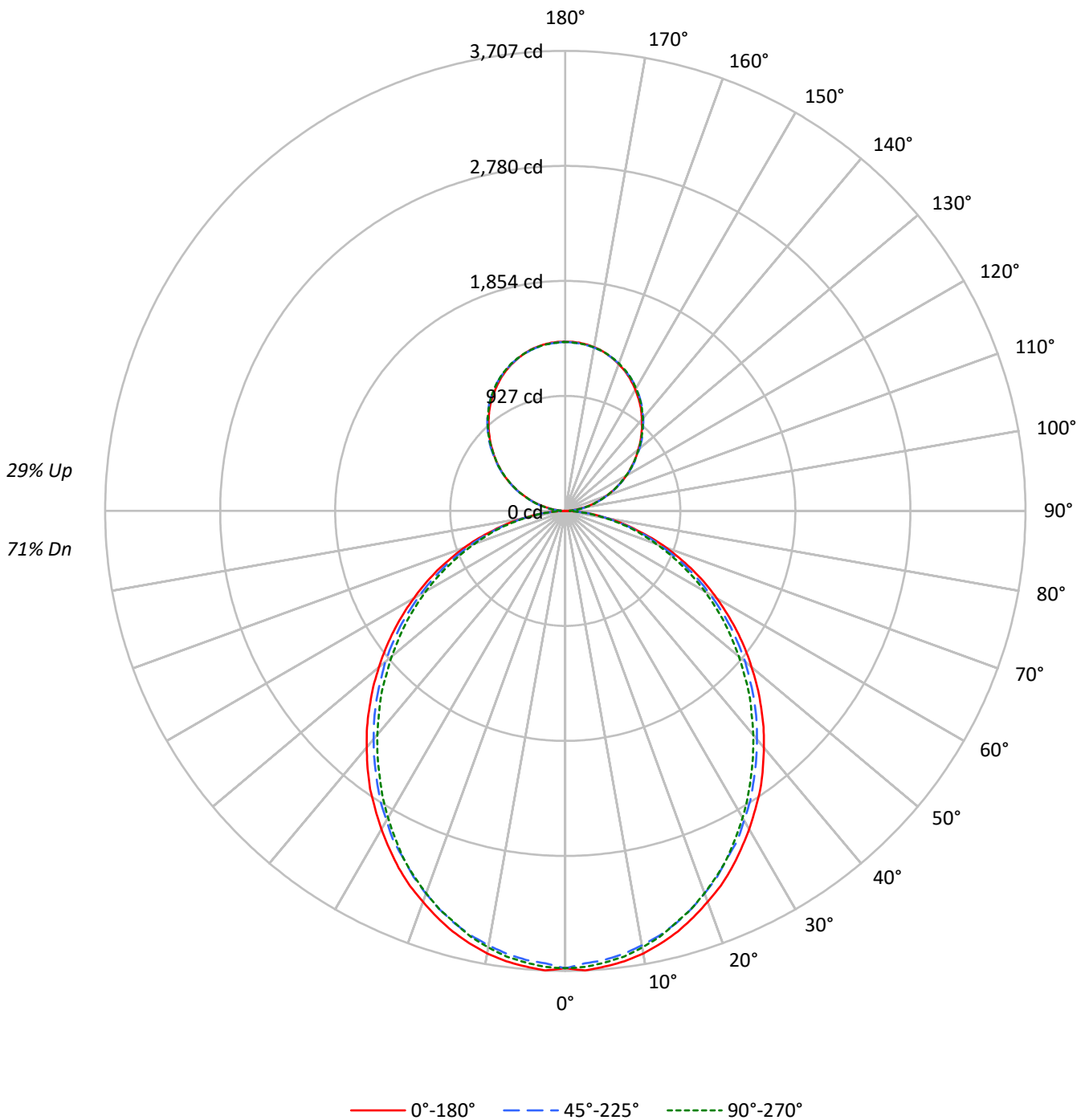
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13186.2 lumens
Efficiency: N/A
Efficacy: 86.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 151.9
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				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	112	112	112	112	106	106	106	106	95	95	95	85	85	85	76	76	76	76	76	76	71
1	103	98	94	90	97	93	89	86	84	81	78	75	73	71	67	65	64	64	64	64	60
2	93	86	79	74	88	81	76	71	73	69	65	66	62	59	59	56	54	54	54	54	50
3	85	75	68	62	80	72	65	59	65	59	55	58	54	50	52	49	46	46	46	46	43
4	78	67	59	52	74	64	56	50	58	51	47	52	47	43	47	43	40	40	40	40	37
5	72	60	51	45	68	57	49	43	52	45	40	47	41	37	42	38	34	34	34	34	32
6	66	54	45	39	63	51	44	38	47	40	35	42	37	33	38	34	30	30	30	30	28
7	61	49	40	35	58	46	39	33	42	36	31	39	33	29	35	30	27	27	27	27	25
8	57	44	36	31	54	42	35	30	39	32	28	35	30	26	32	28	24	24	24	24	22
9	53	41	33	28	50	39	32	27	36	29	25	33	27	24	30	25	22	22	22	22	20
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	28	23	20	20	20	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2690	2690	2690
5°	2694	2653	2671
10°	2673	2618	2635
15°	2633	2575	2579
20°	2580	2515	2522
25°	2527	2444	2456
30°	2461	2378	2371
35°	2398	2300	2281
40°	2321	2221	2196
45°	2244	2142	2109
50°	2160	2058	2009
55°	2072	1962	1916
60°	1972	1848	1810
65°	1863	1730	1685
70°	1725	1586	1550
75°	1533	1414	1427
80°	1303	1195	1190
85°	943	816	796

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2244 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	346.9	2.6
10°-20°	975.9	7.4
20°-30°	1434.2	10.9
30°-40°	1665.7	12.6
40°-50°	1663.7	12.6
50°-60°	1450.7	11.0
60°-70°	1072.4	8.1
70°-80°	606.7	4.6
80°-90°	164.0	1.2
90°-100°	84.2	0.6
100°-110°	267.7	2.0
110°-120°	458.1	3.5
120°-130°	602.5	4.6
130°-140°	676.3	5.1
140°-150°	663.1	5.0
150°-160°	556.3	4.2
160°-170°	368.9	2.8
170°-180°	128.9	1.0
0°-30°	2757.0	20.9
0°-40°	4422.7	33.5
0°-60°	7537.0	57.2
0°-90°	9380.1	71.1
90°-120°	810.0	6.1
90°-150°	2751.9	20.9
90°-180°	3806.0	28.9
0°-180°	13186.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3685	3685	3685	3685	3685	
5°	3685	3671	3632	3660	3654	350
15°	3508	3487	3441	3455	3437	988
25°	3175	3147	3087	3094	3087	1461
35°	2739	2704	2647	2626	2608	1711
45°	2229	2204	2151	2112	2098	1720
55°	1687	1666	1623	1580	1563	1508
65°	1138	1116	1081	1049	1031	1125
75°	595	588	570	549	556	635
85°	145	142	138	127	124	162
90°	1	15	40	38	39	13
95°	60	72	73	73	72	67
105°	247	250	253	255	255	261
115°	460	466	464	463	460	455
125°	669	679	676	672	671	598
135°	865	878	880	879	876	669
145°	1050	1058	1065	1066	1061	656
155°	1201	1204	1208	1213	1210	553
165°	1306	1305	1305	1313	1307	368
175°	1359	1356	1353	1362	1354	129
180°	1362	1362	1362	1362	1362	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3685.2	3685.2	3685.2	3685.2	3685.2
2.5°	3706.6	3688.9	3649.9	3685.2	3678.4
5°	3685.2	3671.3	3632.2	3660.4	3653.6
7.5°	3660.4	3639.4	3600.3	3628.8	3621.7
10°	3621.7	3596.8	3554.4	3582.5	3572.0
12.5°	3568.3	3547.2	3504.8	3522.4	3515.3
15°	3508.1	3487.0	3440.8	3455.1	3437.4
17.5°	3433.7	3412.7	3366.4	3384.1	3366.4
20°	3352.1	3331.0	3281.4	3291.9	3278.1
22.5°	3270.9	3238.9	3192.7	3192.7	3185.5
25°	3175.0	3146.9	3086.7	3093.5	3086.7
27.5°	3068.6	3043.8	2997.9	2987.4	2969.8
30°	2962.6	2934.0	2881.0	2870.5	2856.2
32.5°	2849.0	2828.0	2771.2	2749.8	2735.5
35°	2739.3	2704.0	2647.1	2625.7	2608.0
37.5°	2615.2	2583.3	2526.5	2501.6	2484.0
40°	2487.8	2459.2	2402.4	2370.8	2356.6
42.5°	2363.7	2335.1	2278.7	2243.0	2222.0
45°	2229.1	2204.2	2150.9	2112.2	2097.9
47.5°	2097.9	2073.1	2016.3	1977.2	1956.1
50°	1959.5	1941.9	1892.2	1842.6	1825.0
52.5°	1825.0	1800.1	1754.3	1715.1	1690.3
55°	1687.0	1665.5	1623.1	1580.5	1562.9
57.5°	1548.6	1530.9	1484.7	1442.2	1427.9
60°	1410.2	1396.4	1346.7	1307.6	1297.1
62.5°	1275.7	1250.9	1215.5	1180.2	1165.9
65°	1137.6	1116.2	1080.9	1049.0	1031.3
67.5°	995.9	977.9	946.3	921.5	907.2
70°	864.7	850.4	818.5	793.7	779.7
72.5°	730.1	715.8	698.2	673.4	662.8
75°	595.1	588.4	570.3	549.3	556.5
77.5°	474.8	460.5	453.4	442.9	432.4
80°	354.6	350.8	343.6	333.1	326.0
82.5°	241.0	241.0	237.6	223.3	223.3
85°	145.2	141.7	138.4	127.4	124.1
87.5°	63.9	56.7	49.6	39.1	35.3
90°	1.2	14.8	40.2	37.8	39.0
92.5°	25.5	34.4	35.7	36.9	36.9
95°	59.9	71.5	73.4	73.4	71.5
97.5°	99.7	110.4	114.9	114.9	114.9
100°	145.7	155.2	158.4	158.4	157.2
102.5°	194.2	201.1	205.6	206.9	205.6
105°	247.1	250.4	252.9	254.9	254.9
107.5°	299.6	304.5	304.5	305.4	299.6
110°	350.5	357.1	357.1	357.1	353.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	405.5	412.5	411.3	408.0	405.5
115°	459.7	466.3	464.3	463.0	459.7
117.5°	513.5	522.5	516.8	513.5	510.2
120°	567.7	576.7	567.7	567.7	564.0
122.5°	616.9	628.4	622.7	619.4	616.9
125°	668.7	678.9	675.6	671.9	670.7
127.5°	719.1	731.8	727.4	722.4	719.1
130°	766.4	781.1	779.0	776.6	772.1
132.5°	819.3	830.8	831.6	825.9	822.6
135°	864.9	877.5	880.0	878.8	875.5
137.5°	915.8	926.0	928.1	927.2	922.3
140°	960.4	970.8	976.5	976.5	972.0
142.5°	1006.4	1016.8	1020.0	1021.2	1016.8
145°	1050.0	1058.2	1064.7	1066.0	1061.4
147.5°	1089.0	1099.2	1104.1	1106.2	1101.6
150°	1129.2	1136.2	1140.6	1144.4	1140.6
152.5°	1164.9	1171.9	1177.6	1182.2	1177.6
155°	1200.6	1203.8	1207.5	1213.3	1209.6
157.5°	1231.4	1233.8	1235.9	1244.1	1238.4
160°	1258.9	1261.4	1262.6	1269.5	1264.6
162.5°	1284.4	1284.4	1285.6	1293.4	1287.6
165°	1306.1	1304.8	1304.8	1313.1	1307.3
167.5°	1325.8	1322.1	1322.1	1330.3	1324.6
170°	1340.6	1337.3	1336.1	1344.3	1337.3
172.5°	1350.8	1347.5	1346.3	1354.5	1347.5
175°	1359.1	1355.7	1353.3	1361.5	1354.5
177.5°	1363.6	1360.3	1357.8	1364.8	1357.8
180°	1361.5	1361.5	1361.5	1361.5	1361.5



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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	12.47	13.56	13.22	14.34	15.27	12.03	13.12	12.78	13.90	14.83
	3H	14.15	15.13	14.92	15.91	16.88	13.67	14.65	14.43	15.43	16.39
	4H	14.75	15.68	15.53	16.47	17.44	14.26	15.19	15.05	15.98	16.96
	6H	15.17	16.02	15.96	16.82	17.81	14.67	15.53	15.47	16.33	17.32
	8H	15.28	16.09	16.08	16.91	17.90	14.79	15.60	15.59	16.42	17.41
	12H	15.34	16.11	16.15	16.92	17.94	14.84	15.61	15.65	16.42	17.44
4H	2H	12.96	13.89	13.75	14.68	15.65	12.61	13.53	13.40	14.33	15.30
	3H	14.85	15.62	15.65	16.45	17.44	14.45	15.22	15.25	16.05	17.04
	4H	15.58	16.28	16.39	17.10	18.12	15.16	15.86	15.97	16.69	17.71
	6H	16.11	16.72	16.94	17.57	18.59	15.68	16.29	16.51	17.14	18.17
	8H	16.26	16.83	17.10	17.68	18.72	15.83	16.40	16.67	17.25	18.29
	12H	16.35	16.86	17.20	17.73	18.77	15.91	16.42	16.76	17.29	18.33
8H	4H	15.79	16.36	16.62	17.21	18.24	15.42	15.99	16.25	16.83	17.87
	6H	16.44	16.91	17.30	17.79	18.83	16.06	16.53	16.92	17.42	18.46
	8H	16.66	17.08	17.53	17.96	19.02	16.28	16.69	17.15	17.58	18.63
	12H	16.80	17.17	17.68	18.05	19.16	16.40	16.77	17.28	17.65	18.76
12H	4H	15.79	16.30	16.64	17.17	18.21	15.43	15.94	16.28	16.80	17.85
	6H	16.47	16.89	17.34	17.77	18.82	16.10	16.52	16.98	17.40	18.46
	8H	16.72	17.09	17.60	17.97	19.08	16.35	16.72	17.23	17.59	18.70