

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: P929354

Luminaire Tested: DFN2DIP-HX4F0-090D120US940-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929354
REPORT IS A COMBINATION OF REPORTS P900974 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D120US940-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

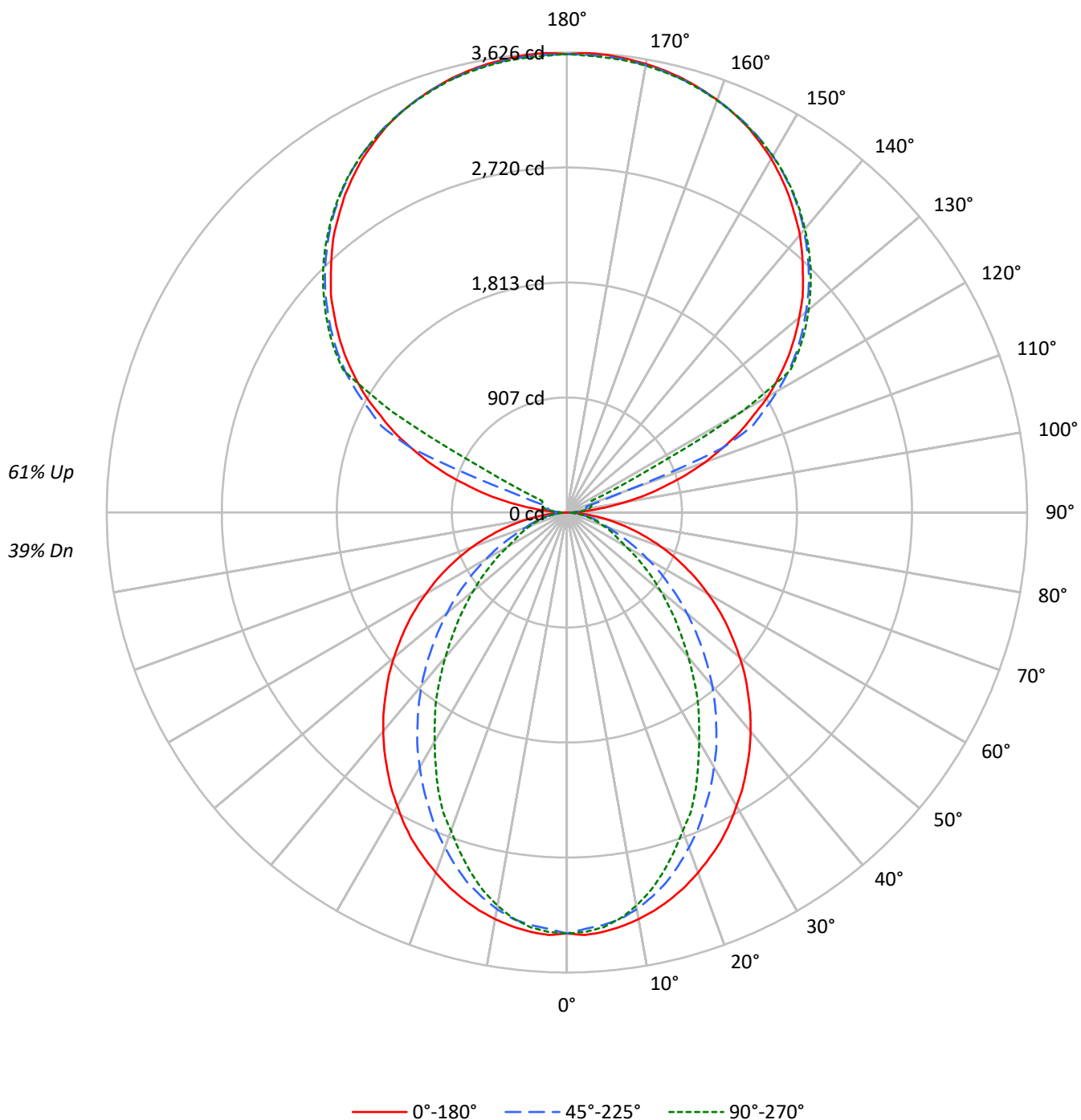
Lumens per Lamp: N/A
Luminaire Lumens: 17420.8 lumens
Efficiency: N/A
Efficacy: 94.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 184.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P929354

CATALOG NUMBER: DFN2DIP-HX4F0-090D120US940-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P929354

CATALOG NUMBER: DFN2DIP-HX4F0-090D120US940-RLLONL

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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46
1	96	92	88	85	87	83	80	78	68	66	64	54	53	52	41	41	40
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29
4	73	63	55	50	67	58	51	46	48	43	39	38	35	32	30	27	26
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	25	23
6	62	51	43	37	56	46	40	35	39	34	30	31	28	25	25	22	20
7	57	46	38	33	52	42	35	31	35	30	26	29	25	22	23	20	18
8	53	42	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2467	2467	2467
5°	2471	2428	2444
10°	2447	2381	2364
15°	2413	2302	2241
20°	2369	2194	2091
25°	2324	2073	1945
30°	2263	1948	1760
35°	2203	1814	1598
40°	2142	1676	1412
45°	2071	1522	1244
50°	1998	1367	1079
55°	1922	1201	921
60°	1833	1028	758
65°	1732	851	682
70°	1609	687	618
75°	1454	606	562
80°	1230	509	488
85°	860	341	368

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2071 cd/sqm

TEST NUMBER: P929354

CATALOG NUMBER: DFN2DIP-HX4F0-090D120US940-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	311.0	1.8
10°-20°	853.7	4.9
20°-30°	1198.5	6.9
30°-40°	1306.5	7.5
40°-50°	1200.8	6.9
50°-60°	943.0	5.4
60°-70°	613.8	3.5
70°-80°	316.0	1.8
80°-90°	87.0	0.5
90°-100°	119.1	0.7
100°-110°	444.1	2.5
110°-120°	1177.7	6.8
120°-130°	1953.3	11.2
130°-140°	2074.9	11.9
140°-150°	1928.4	11.1
150°-160°	1550.3	8.9
160°-170°	999.0	5.7
170°-180°	343.8	2.0
0°-30°	2363.1	13.6
0°-40°	3669.6	21.1
0°-60°	5813.4	33.4
0°-90°	6830.2	39.2
90°-120°	1740.9	10.0
90°-150°	7697.4	44.2
90°-180°	10591.0	60.8
0°-180°	17420.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3318	3318	3318	3318	3318	
5°	3318	3303	3264	3291	3282	315
15°	3156	3123	3021	2964	2934	889
25°	2865	2768	2570	2447	2402	1317
35°	2468	2315	2051	1862	1796	1545
45°	2018	1817	1501	1288	1216	1558
55°	1534	1300	976	796	739	1371
65°	1036	793	522	420	411	1027
75°	552	342	240	219	216	584
85°	129	66	57	57	57	148
90°	2	31	52	66	70	16
95°	170	84	102	115	112	201
105°	795	873	160	188	199	849
115°	1503	1547	1613	403	214	1480
125°	2125	2159	2209	2227	2235	1895
135°	2630	2672	2695	2721	2716	2031
145°	3051	3048	3092	3111	3098	1908
155°	3359	3336	3367	3382	3362	1548
165°	3539	3524	3531	3550	3531	1000
175°	3620	3602	3607	3626	3599	345
180°	3612	3612	3612	3612	3612	

TEST NUMBER: P929354

CATALOG NUMBER: DFN2DIP-HX4F0-090D120US940-RLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3318.0	3318.0	3318.0	3318.0	3318.0
2.5°	3333.0	3318.0	3284.8	3315.1	3309.1
5°	3318.0	3303.0	3263.8	3290.9	3281.9
7.5°	3290.9	3273.0	3231.0	3242.8	3227.8
10°	3254.9	3233.9	3174.0	3164.7	3146.9
12.5°	3210.0	3182.9	3101.7	3083.8	3050.6
15°	3155.8	3122.7	3020.8	2963.7	2933.8
17.5°	3092.7	3044.7	2918.4	2852.5	2804.4
20°	3020.8	2960.5	2810.4	2735.6	2669.3
22.5°	2942.7	2873.6	2699.3	2597.3	2552.5
25°	2864.7	2768.4	2570.3	2447.3	2402.1
27.5°	2771.6	2669.3	2450.1	2309.0	2239.9
30°	2672.5	2558.2	2318.0	2165.1	2083.8
32.5°	2576.3	2438.0	2192.1	2011.8	1936.6
35°	2468.3	2315.1	2051.0	1861.8	1795.5
37.5°	2363.2	2197.9	1918.8	1711.4	1636.6
40°	2252.0	2072.0	1780.5	1567.4	1489.4
42.5°	2137.9	1945.9	1642.5	1420.2	1345.3
45°	2017.9	1816.6	1501.4	1288.0	1216.0
47.5°	1903.8	1690.7	1366.4	1152.9	1087.0
50°	1777.7	1564.5	1234.2	1026.8	964.0
52.5°	1654.4	1429.2	1108.0	909.8	852.8
55°	1534.2	1300.1	975.8	795.8	738.8
57.5°	1411.3	1171.1	858.9	690.7	642.6
60°	1285.1	1044.9	735.6	582.7	534.6
62.5°	1162.2	922.0	630.5	486.5	462.6
65°	1036.0	792.6	522.4	420.5	411.3
67.5°	915.9	672.5	420.5	369.2	360.3
70°	789.8	555.6	348.2	318.3	306.1
72.5°	669.6	447.2	291.1	267.2	261.3
75°	552.4	342.2	240.2	219.2	216.3
77.5°	435.5	243.1	189.2	177.2	171.1
80°	327.2	174.3	144.0	132.2	132.2
82.5°	228.1	117.2	99.1	93.0	93.0
85°	129.0	65.9	57.0	57.0	57.0
87.5°	48.1	23.9	23.9	21.1	21.1
90°	2.5	31.3	52.2	65.5	70.5
92.5°	65.5	54.9	62.7	68.0	70.5
95°	169.7	83.5	101.8	115.2	112.4
97.5°	305.8	91.6	133.2	141.2	143.7
100°	462.8	104.6	149.0	169.7	175.1
102.5°	635.1	630.1	154.2	182.9	190.9
105°	794.6	873.2	159.6	188.1	198.6
107.5°	980.2	1045.4	164.8	193.4	203.9
110°	1158.1	1212.8	457.5	196.2	206.4

TEST NUMBER: P929354

CATALOG NUMBER: DFN2DIP-HX4F0-090D120US940-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1325.4	1372.3	1327.9	201.1	209.2
115°	1502.9	1547.4	1612.8	402.6	214.5
117.5°	1657.2	1709.4	1754.1	1380.0	695.3
120°	1829.8	1868.9	1916.1	1947.5	1594.5
122.5°	1976.0	2018.0	2070.4	2085.9	2088.7
125°	2125.0	2159.2	2208.9	2227.1	2234.9
127.5°	2261.0	2297.6	2337.0	2363.1	2365.6
130°	2389.1	2431.1	2459.6	2488.5	2486.0
132.5°	2519.8	2554.0	2582.5	2606.2	2603.7
135°	2629.7	2671.6	2694.9	2721.3	2716.1
137.5°	2744.6	2775.9	2802.3	2828.4	2820.6
140°	2857.0	2878.0	2906.6	2930.2	2917.2
142.5°	2951.3	2969.6	3003.5	3024.2	3011.2
145°	3050.6	3047.9	3092.2	3110.6	3097.5
147.5°	3136.6	3128.9	3173.3	3186.3	3176.1
150°	3220.4	3202.1	3244.0	3259.5	3246.5
152.5°	3290.9	3270.1	3309.2	3325.0	3306.7
155°	3358.8	3335.5	3366.9	3382.5	3361.7
157.5°	3413.8	3393.0	3416.6	3434.9	3413.8
160°	3461.0	3445.2	3461.0	3476.5	3458.2
162.5°	3502.6	3487.1	3500.1	3518.4	3494.9
165°	3539.2	3523.7	3531.4	3549.8	3531.4
167.5°	3568.1	3552.2	3560.3	3578.6	3555.1
170°	3591.6	3575.8	3581.1	3599.4	3575.8
172.5°	3607.2	3591.6	3597.0	3615.3	3591.6
175°	3620.2	3601.9	3607.2	3625.5	3599.4
177.5°	3625.5	3607.2	3610.0	3628.3	3604.8
180°	3612.5	3612.5	3612.5	3612.5	3612.5

TEST NUMBER: P929354

CATALOG NUMBER: DFN2DIP-HX4F0-090D120US940-RLONL

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	9.19	9.94	10.24	10.99	12.41	5.16	5.91	6.21	6.96	8.38
	3H	10.86	11.53	11.92	12.59	14.03	6.34	7.01	7.40	8.07	9.51
	4H	11.46	12.10	12.54	13.16	14.61	6.79	7.43	7.86	8.49	9.93
	6H	11.88	12.47	12.96	13.53	14.99	7.11	7.69	8.19	8.76	10.22
	8H	12.01	12.56	13.09	13.64	15.10	7.20	7.76	8.29	8.84	10.29
	12H	12.07	12.59	13.16	13.67	15.14	7.24	7.77	8.33	8.84	10.32
4H	2H	9.20	9.83	10.27	10.89	12.34	5.75	6.38	6.82	7.44	8.89
	3H	11.02	11.55	12.10	12.64	14.09	7.09	7.62	8.18	8.71	10.17
	4H	11.71	12.19	12.80	13.27	14.75	7.64	8.12	8.73	9.20	10.68
	6H	12.22	12.63	13.32	13.74	15.21	8.05	8.47	9.15	9.57	11.04
	8H	12.39	12.78	13.49	13.88	15.36	8.18	8.57	9.28	9.66	11.15
	12H	12.49	12.84	13.60	13.94	15.44	8.24	8.59	9.36	9.70	11.20
8H	4H	11.67	12.06	12.77	13.15	14.64	7.91	8.30	9.01	9.39	10.88
	6H	12.24	12.55	13.36	13.69	15.18	8.43	8.75	9.55	9.89	11.37
	8H	12.45	12.73	13.58	13.85	15.36	8.62	8.90	9.75	10.02	11.53
	12H	12.59	12.83	13.72	13.95	15.49	8.74	8.98	9.87	10.10	11.64
12H	4H	11.62	11.97	12.73	13.08	14.57	7.91	8.26	9.03	9.37	10.86
	6H	12.21	12.49	13.34	13.61	15.11	8.48	8.76	9.61	9.88	11.38
	8H	12.43	12.67	13.56	13.79	15.33	8.69	8.93	9.82	10.05	11.59

END OF REPORT