

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: P929462

Luminaire Tested: DFN2DIP-HX4F0-120D120US940-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929462
REPORT IS A COMBINATION OF REPORTS P900980 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D120US940-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

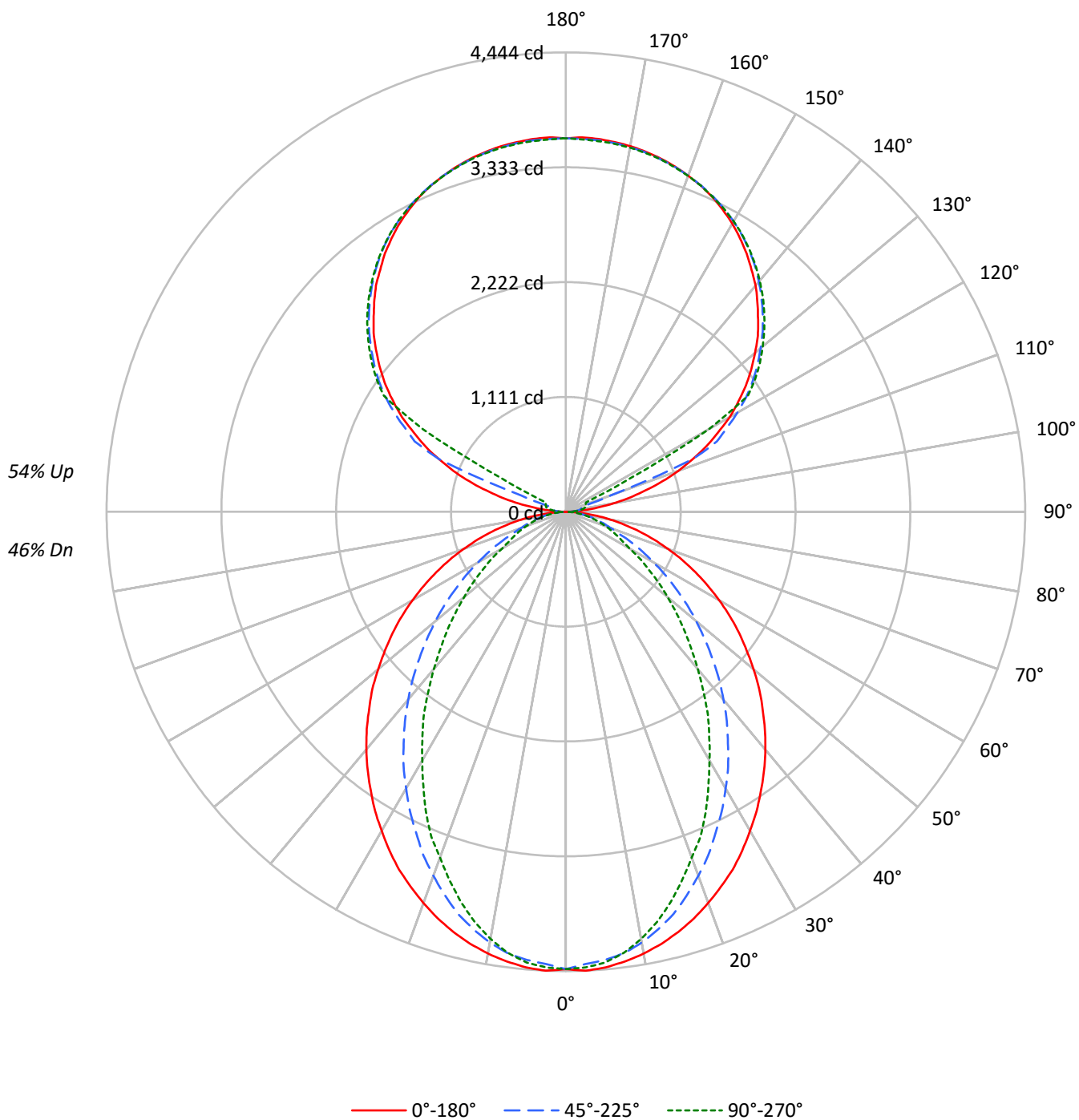
Lumens per Lamp: N/A
Luminaire Lumens: 19695.3 lumens
Efficiency: N/A
Efficacy: 88.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 222.1
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: P929462

CATALOG NUMBER: DFN2DIP-HX4F0-120D120US940-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P929462

CATALOG NUMBER: DFN2DIP-HX4F0-120D120US940-RLLONL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					0
RW	70	50	30	10	70	50	30	10	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	46		
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45	40		
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39	34		
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34	29		
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29	26		
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23		
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20		
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21	18		
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16		
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17	15		
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15	13		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3290	3290	3290
5°	3295	3238	3258
10°	3263	3174	3152
15°	3218	3070	2989
20°	3159	2926	2788
25°	3098	2764	2593
30°	3017	2598	2347
35°	2937	2419	2131
40°	2856	2235	1883
45°	2762	2029	1658
50°	2664	1823	1439
55°	2562	1601	1227
60°	2445	1370	1011
65°	2309	1135	910
70°	2145	916	824
75°	1939	808	750
80°	1641	679	651
85°	1147	455	490

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2762 cd/sqm

TEST NUMBER: P929462

CATALOG NUMBER: DFN2DIP-HX4F0-120D120US940-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	414.6	2.1
10°-20°	1138.2	5.8
20°-30°	1598.0	8.1
30°-40°	1741.9	8.8
40°-50°	1601.0	8.1
50°-60°	1257.3	6.4
60°-70°	818.4	4.2
70°-80°	421.3	2.1
80°-90°	113.9	0.6
90°-100°	119.1	0.6
100°-110°	444.1	2.3
110°-120°	1177.7	6.0
120°-130°	1953.3	9.9
130°-140°	2074.9	10.5
140°-150°	1928.4	9.8
150°-160°	1550.3	7.9
160°-170°	999.0	5.1
170°-180°	343.8	1.7
0°-30°	3150.8	16.0
0°-40°	4892.8	24.8
0°-60°	7751.1	39.4
0°-90°	9104.8	46.2
90°-120°	1740.9	8.8
90°-150°	7697.4	39.1
90°-180°	10591.0	53.8
0°-180°	19695.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4424	4424	4424	4424	4424	
5°	4424	4404	4352	4388	4376	419
15°	4208	4164	4028	3952	3912	1186
25°	3820	3691	3427	3263	3203	1757
35°	3291	3087	2735	2482	2394	2060
45°	2690	2422	2002	1717	1621	2078
55°	2046	1734	1301	1061	985	1828
65°	1381	1057	697	561	548	1369
75°	736	456	320	292	288	779
85°	172	88	76	76	76	198
90°	2	31	52	66	70	18
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: P929462

CATALOG NUMBER: DFN2DIP-HX4F0-120D120US940-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4424.0	4424.0	4424.0	4424.0	4424.0
2.5°	4443.9	4424.0	4379.8	4420.1	4412.0
5°	4424.0	4404.0	4351.7	4387.8	4376.0
7.5°	4387.8	4364.0	4308.0	4323.7	4303.7
10°	4339.8	4311.8	4231.9	4219.6	4195.9
12.5°	4279.9	4243.9	4135.5	4111.8	4067.6
15°	4207.7	4163.6	4027.6	3951.6	3911.7
17.5°	4123.6	4059.5	3891.3	3803.4	3739.3
20°	4027.6	3947.4	3747.3	3647.5	3559.1
22.5°	3923.6	3831.4	3599.0	3463.1	3403.2
25°	3819.5	3691.2	3427.0	3263.0	3202.7
27.5°	3695.5	3559.1	3266.9	3078.7	2986.5
30°	3563.4	3410.9	3090.6	2886.7	2778.4
32.5°	3435.1	3250.7	2922.8	2682.4	2582.2
35°	3291.1	3086.8	2734.6	2482.3	2393.9
37.5°	3150.9	2930.5	2558.3	2281.8	2182.0
40°	3002.7	2762.7	2374.1	2089.9	1985.8
42.5°	2850.6	2594.5	2190.1	1893.6	1793.8
45°	2690.5	2422.0	2001.9	1717.4	1621.3
47.5°	2538.4	2254.3	1821.8	1537.3	1449.3
50°	2370.2	2086.0	1645.6	1369.0	1285.4
52.5°	2205.8	1905.5	1477.3	1213.1	1137.1
55°	2045.7	1733.5	1301.1	1061.0	985.0
57.5°	1881.7	1561.4	1145.1	920.9	856.8
60°	1713.5	1393.2	980.8	776.9	712.8
62.5°	1549.6	1229.3	840.6	648.7	616.7
65°	1381.4	1056.8	696.7	560.7	548.4
67.5°	1221.2	896.6	560.7	492.3	480.4
70°	1053.0	740.8	464.3	424.3	408.2
72.5°	892.9	596.4	388.2	356.4	348.3
75°	736.5	456.2	320.3	292.2	288.4
77.5°	580.7	324.1	252.3	236.2	228.1
80°	436.3	232.4	192.0	176.3	176.3
82.5°	304.2	156.3	132.1	124.0	124.0
85°	172.1	88.0	76.0	76.0	76.0
87.5°	64.1	31.8	31.8	28.0	28.0
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: P929462

CATALOG NUMBER: DFN2DIP-HX4F0-120D120US940-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: P929462

CATALOG NUMBER: DFN2DIP-HX4F0-120D120US940-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	10.92	11.72	11.92	12.72	14.05	6.89	7.70	7.89	8.70	10.02
	3H	12.60	13.31	13.60	14.32	15.67	8.08	8.80	9.09	9.81	11.16
	4H	13.21	13.88	14.22	14.90	16.25	8.53	9.21	9.55	10.22	11.58
	6H	13.63	14.25	14.66	15.27	16.64	8.85	9.48	9.88	10.50	11.86
	8H	13.75	14.35	14.79	15.38	16.74	8.95	9.54	9.98	10.57	11.94
	12H	13.81	14.38	14.85	15.41	16.79	8.99	9.55	10.03	10.58	11.97
4H	2H	10.94	11.61	11.96	12.63	13.98	7.49	8.16	8.51	9.18	10.53
	3H	12.76	13.33	13.80	14.37	15.74	8.84	9.40	9.87	10.44	11.81
	4H	13.46	13.97	14.50	15.01	16.40	9.38	9.90	10.43	10.93	12.33
	6H	13.97	14.41	15.02	15.47	16.86	9.80	10.25	10.85	11.30	12.69
	8H	14.15	14.56	15.20	15.61	17.01	9.93	10.35	10.98	11.40	12.80
	12H	14.24	14.61	15.31	15.68	17.09	10.00	10.37	11.07	11.44	12.84
8H	4H	13.42	13.83	14.47	14.89	16.29	9.66	10.08	10.71	11.13	12.53
	6H	13.99	14.33	15.06	15.42	16.82	10.18	10.52	11.26	11.62	13.02
	8H	14.21	14.50	15.29	15.58	17.00	10.38	10.67	11.46	11.75	13.17
	12H	14.34	14.61	15.43	15.68	17.14	10.49	10.76	11.58	11.83	13.29
12H	4H	13.37	13.75	14.44	14.81	16.22	9.67	10.04	10.74	11.10	12.51
	6H	13.96	14.26	15.05	15.34	16.76	10.23	10.53	11.31	11.61	13.03
	8H	14.18	14.45	15.27	15.52	16.98	10.44	10.71	11.53	11.78	13.24

END OF REPORT