

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: P927544

Luminaire Tested: DFN2DIP-HX4F0-040D100US840-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927544
REPORT IS A COMBINATION OF REPORTS P900927 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D100US840-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

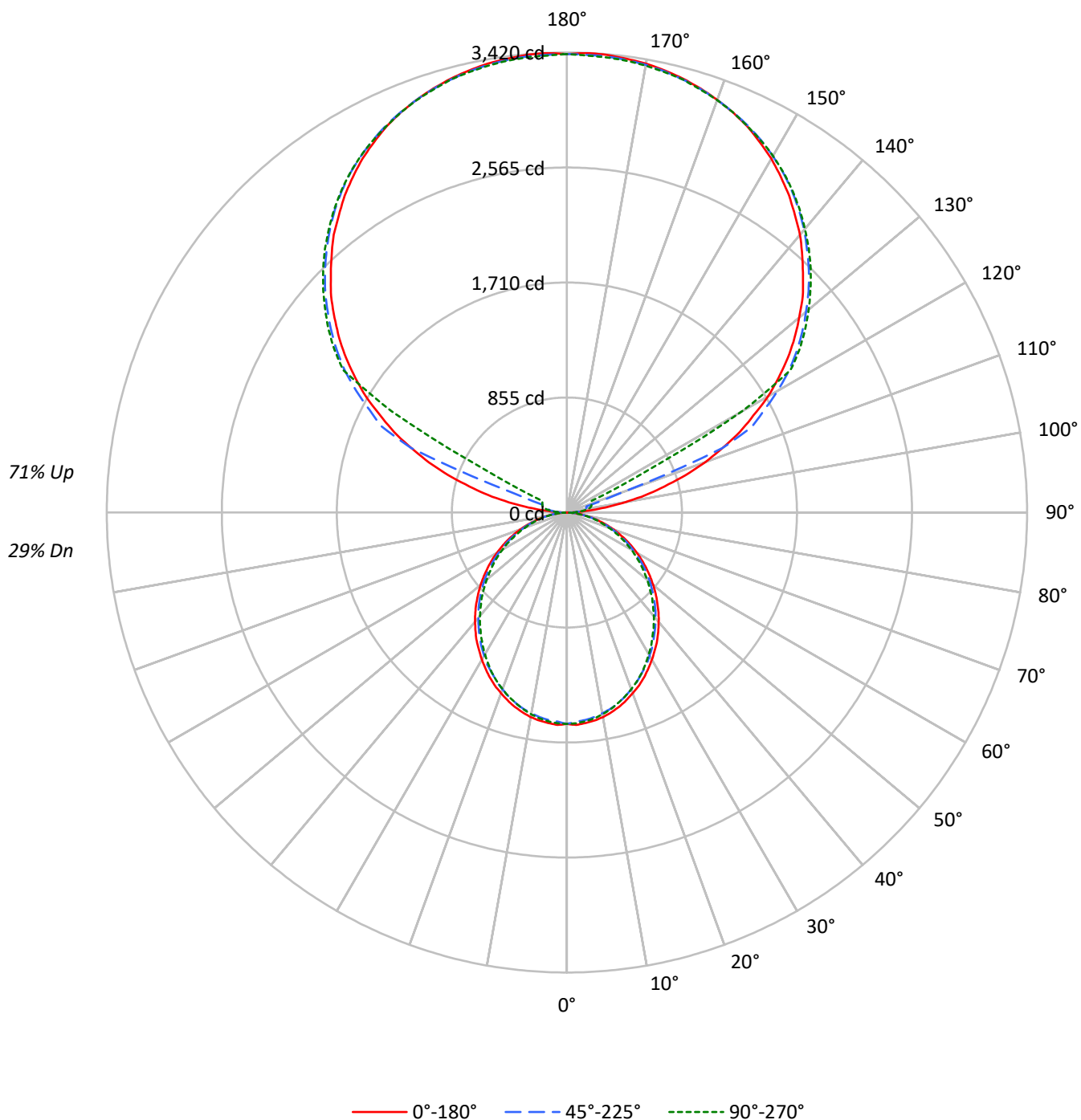
Lumens per Lamp: N/A
Luminaire Lumens: 13995.9 lumens
Efficiency: N/A
Efficacy: 127.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 109.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P927544

CATALOG NUMBER: DFN2DIP-HX4F0-040D100US840-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P927544

CATALOG NUMBER: DFN2DIP-HX4F0-040D100US840-FLONL

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	102	102	102	102	91	91	91	91	71	71	71	53	53	53	36	36	36
1	93	89	85	82	83	80	77	74	62	60	58	47	45	44	32	31	31
2	85	77	72	67	76	70	65	60	55	51	48	41	39	37	28	27	26
3	77	68	61	55	69	61	55	50	48	44	41	36	33	31	25	23	22
4	71	60	53	47	63	54	48	43	43	38	34	32	29	27	22	21	19
5	65	53	46	40	58	48	41	36	38	33	30	29	26	23	20	18	16
6	59	48	40	34	53	43	36	31	34	29	26	26	23	20	18	16	14
7	55	43	35	30	49	39	32	27	31	26	23	24	20	18	17	14	13
8	51	39	31	26	45	35	29	24	28	23	20	22	18	16	15	13	11
9	47	35	28	23	42	32	26	21	26	21	18	20	16	14	14	12	10
10	44	32	25	21	39	29	23	19	24	19	16	18	15	13	13	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1169	1169	1169
5°	1171	1152	1160
10°	1161	1137	1145
15°	1144	1118	1120
20°	1121	1093	1095
25°	1098	1062	1066
30°	1070	1033	1029
35°	1043	999	990
40°	1009	964	953
45°	976	930	915
50°	939	894	871
55°	901	852	831
60°	858	802	784
65°	811	751	730
70°	751	688	671
75°	668	614	617
80°	569	518	513
85°	413	353	341

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1748 cd/sqm

TEST NUMBER: P927544

CATALOG NUMBER: DFN2DIP-HX4F0-040D100US840-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.9	1.1
10°-20°	416.2	3.0
20°-30°	611.7	4.4
30°-40°	710.4	5.1
40°-50°	709.5	5.1
50°-60°	618.7	4.4
60°-70°	457.3	3.3
70°-80°	258.8	1.8
80°-90°	74.3	0.5
90°-100°	112.4	0.8
100°-110°	418.9	3.0
110°-120°	1111.0	7.9
120°-130°	1842.7	13.2
130°-140°	1957.4	14.0
140°-150°	1819.2	13.0
150°-160°	1462.6	10.5
160°-170°	942.4	6.7
170°-180°	324.4	2.3
0°-30°	1175.8	8.4
0°-40°	1886.2	13.5
0°-60°	3214.4	23.0
0°-90°	4004.8	28.6
90°-120°	1642.3	11.7
90°-150°	7261.7	51.9
90°-180°	9991.0	71.4
0°-180°	13995.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1572	1572	1572	1572	1572	
5°	1572	1566	1549	1561	1558	149
15°	1496	1487	1467	1474	1466	421
25°	1354	1342	1316	1319	1316	623
35°	1168	1153	1129	1120	1112	730
45°	951	940	917	901	895	734
55°	720	710	692	674	667	643
65°	485	476	461	447	440	480
75°	254	251	243	234	237	271
85°	62	60	59	54	53	69
90°	2	30	49	62	66	13
95°	160	79	96	109	106	190
105°	750	824	151	177	187	801
115°	1418	1460	1522	380	202	1396
125°	2005	2037	2084	2101	2108	1788
135°	2481	2520	2542	2567	2562	1916
145°	2878	2875	2917	2934	2922	1800
155°	3169	3147	3176	3191	3171	1460
165°	3339	3324	3332	3349	3332	943
175°	3415	3398	3403	3420	3396	325
180°	3408	3408	3408	3408	3408	

TEST NUMBER: P927544

CATALOG NUMBER: DFN2DIP-HX4F0-040D100US840-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1571.7	1571.7	1571.7	1571.7	1571.7
2.5°	1580.8	1573.3	1556.6	1571.7	1568.8
5°	1571.7	1565.7	1549.0	1561.0	1558.2
7.5°	1561.0	1552.1	1535.4	1547.6	1544.6
10°	1544.6	1534.0	1515.9	1527.9	1523.4
12.5°	1521.8	1512.8	1494.7	1502.3	1499.1
15°	1496.1	1487.1	1467.4	1473.5	1466.0
17.5°	1464.4	1455.4	1435.7	1443.2	1435.7
20°	1429.6	1420.6	1399.5	1403.9	1398.1
22.5°	1394.9	1381.3	1361.6	1361.6	1358.6
25°	1354.0	1342.0	1316.4	1319.3	1316.4
27.5°	1308.7	1298.1	1278.6	1274.1	1266.6
30°	1263.5	1251.3	1228.7	1224.2	1218.1
32.5°	1215.1	1206.1	1181.9	1172.8	1166.6
35°	1168.2	1153.2	1129.0	1119.9	1112.3
37.5°	1115.3	1101.7	1077.5	1067.0	1059.4
40°	1061.0	1048.8	1024.5	1011.1	1005.1
42.5°	1008.1	995.9	971.8	956.6	947.6
45°	950.6	940.1	917.3	900.8	894.7
47.5°	894.7	884.1	859.9	843.3	834.3
50°	835.7	828.1	807.0	785.8	778.3
52.5°	778.3	767.8	748.2	731.5	720.9
55°	719.5	710.3	692.2	674.0	666.6
57.5°	660.4	652.9	633.1	615.1	609.0
60°	601.4	595.5	574.4	557.7	553.2
62.5°	544.1	533.5	518.4	503.3	497.2
65°	485.2	476.0	461.0	447.3	439.9
67.5°	424.7	417.0	403.6	393.0	387.0
70°	368.8	362.7	349.1	338.5	332.5
72.5°	311.4	305.3	297.8	287.2	282.6
75°	253.9	250.9	243.3	234.3	237.3
77.5°	202.5	196.4	193.4	188.8	184.4
80°	151.2	149.6	146.5	142.1	139.0
82.5°	102.8	102.8	101.4	95.2	95.2
85°	61.9	60.5	59.0	54.3	52.9
87.5°	27.3	24.2	21.2	16.7	15.0
90°	2.3	29.6	49.2	61.8	66.4
92.5°	61.8	51.8	59.2	64.1	66.4
95°	160.2	78.8	96.0	108.7	106.0
97.5°	288.4	86.3	125.6	133.2	135.6
100°	436.6	98.7	140.6	160.2	165.2
102.5°	599.1	594.5	145.5	172.5	180.0
105°	749.7	823.7	150.6	177.4	187.4
107.5°	924.8	986.3	155.5	182.5	192.4
110°	1092.5	1144.1	431.6	185.1	194.7

TEST NUMBER: P927544

CATALOG NUMBER: DFN2DIP-HX4F0-040D100US840-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1250.3	1294.6	1252.8	189.7	197.4
115°	1417.9	1459.8	1521.6	379.8	202.4
117.5°	1563.4	1612.7	1654.8	1301.9	656.0
120°	1726.3	1763.1	1807.6	1837.2	1504.3
122.5°	1864.2	1903.7	1953.2	1967.8	1970.4
125°	2004.8	2037.0	2083.8	2101.1	2108.4
127.5°	2133.0	2167.5	2204.7	2229.3	2231.7
130°	2253.9	2293.5	2320.4	2347.6	2345.3
132.5°	2377.2	2409.4	2436.3	2458.6	2456.2
135°	2480.9	2520.4	2542.4	2567.2	2562.3
137.5°	2589.2	2618.8	2643.7	2668.3	2660.9
140°	2695.2	2715.2	2742.0	2764.3	2752.0
142.5°	2784.2	2801.5	2833.4	2853.0	2840.8
145°	2877.9	2875.3	2917.2	2934.5	2922.2
147.5°	2959.0	2951.7	2993.6	3005.9	2996.3
150°	3038.1	3020.8	3060.4	3075.0	3062.7
152.5°	3104.5	3084.9	3121.9	3136.7	3119.5
155°	3168.8	3146.7	3176.3	3191.0	3171.4
157.5°	3220.6	3201.0	3223.2	3240.4	3220.6
160°	3265.1	3250.1	3265.1	3279.7	3262.5
162.5°	3304.3	3289.6	3301.9	3319.2	3297.0
165°	3338.8	3324.2	3331.5	3348.8	3331.5
167.5°	3366.1	3351.1	3358.8	3376.1	3353.7
170°	3388.3	3373.4	3378.4	3395.7	3373.4
172.5°	3402.9	3388.3	3393.3	3410.6	3388.3
175°	3415.2	3398.0	3402.9	3420.3	3395.7
177.5°	3420.3	3402.9	3405.7	3422.9	3400.6
180°	3408.0	3408.0	3408.0	3408.0	3408.0

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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	5.41	6.10	6.53	7.22	8.77	4.98	5.67	6.10	6.79	8.34
	3H	7.06	7.68	8.19	8.80	10.37	6.58	7.21	7.71	8.33	9.89
	4H	7.64	8.23	8.78	9.35	10.92	7.16	7.76	8.30	8.88	10.45
	6H	8.03	8.57	9.18	9.70	11.28	7.55	8.10	8.70	9.22	10.80
	8H	8.13	8.65	9.28	9.79	11.36	7.65	8.17	8.80	9.31	10.89
	12H	8.17	8.66	9.33	9.80	11.40	7.69	8.18	8.85	9.32	10.91
4H	2H	5.85	6.44	7.00	7.57	9.13	5.51	6.10	6.65	7.22	8.79
	3H	7.70	8.20	8.85	9.35	10.93	7.31	7.80	8.46	8.95	10.53
	4H	8.41	8.87	9.56	10.00	11.60	8.00	8.46	9.16	9.60	11.20
	6H	8.92	9.31	10.08	10.47	12.06	8.51	8.90	9.67	10.06	11.65
	8H	9.06	9.43	10.22	10.58	12.19	8.65	9.01	9.81	10.17	11.77
	12H	9.13	9.46	10.30	10.62	12.23	8.71	9.04	9.88	10.20	11.81
8H	4H	8.59	8.96	9.75	10.11	11.72	8.23	8.60	9.39	9.75	11.36
	6H	9.22	9.52	10.40	10.71	12.32	8.86	9.16	10.04	10.35	11.96
	8H	9.44	9.70	10.62	10.87	12.50	9.07	9.33	10.26	10.51	12.13
	12H	9.56	9.79	10.75	10.96	12.62	9.18	9.41	10.37	10.58	12.24
12H	4H	8.57	8.90	9.75	10.07	11.68	8.22	8.55	9.40	9.71	11.33
	6H	9.25	9.51	10.43	10.68	12.31	8.90	9.16	10.08	10.33	11.96
	8H	9.48	9.71	10.67	10.88	12.54	9.13	9.36	10.31	10.53	12.18

END OF REPORT