

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: P927546

Luminaire Tested: DFN2DIP-HX4F0-040D100US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927546
REPORT IS A COMBINATION OF REPORTS P900928 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D100US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

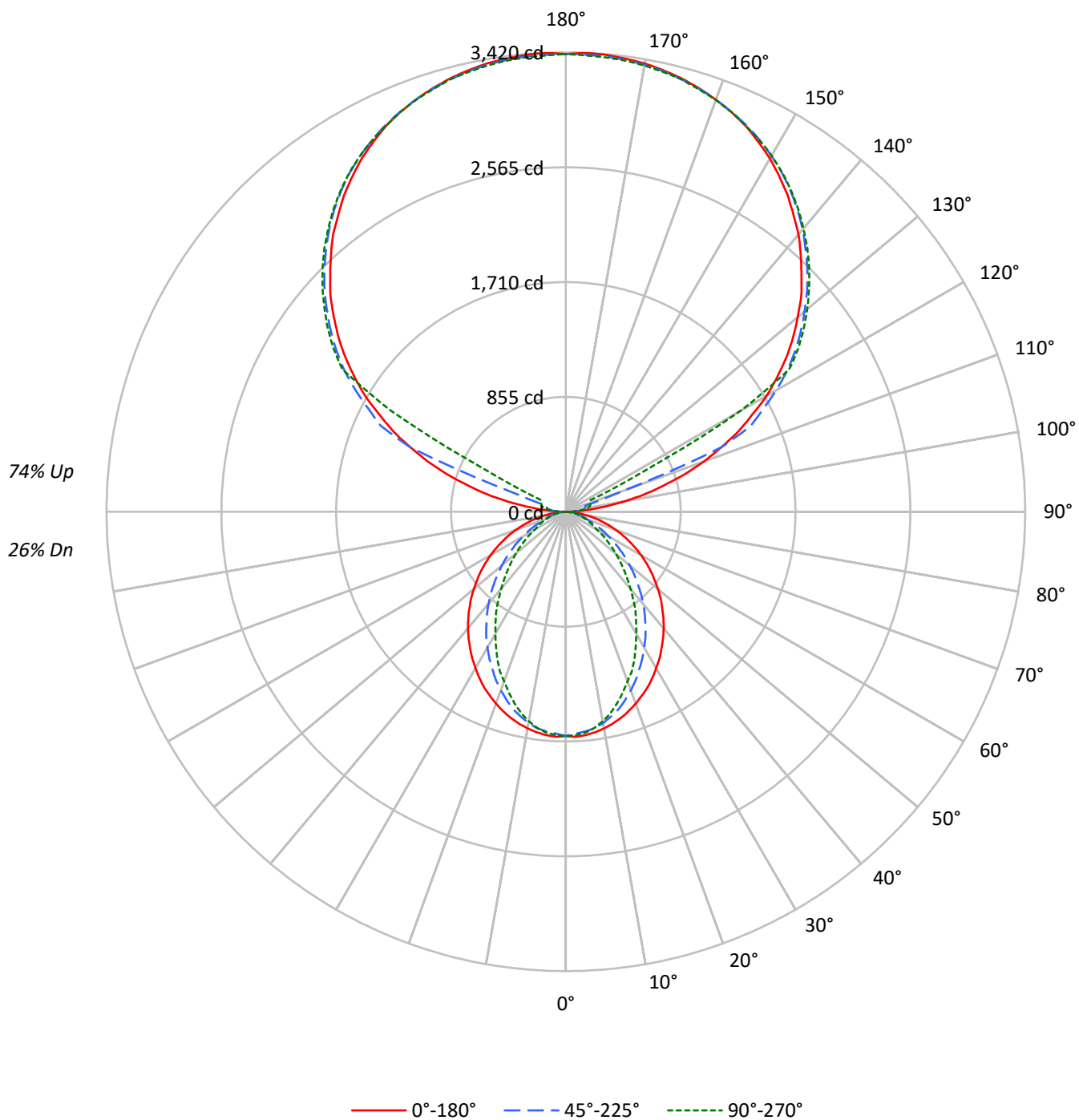
Lumens per Lamp: N/A
Luminaire Lumens: 13430.4 lumens
Efficiency: N/A
Efficacy: 122.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 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

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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	101	101	101	101	90	90	90	90	70	70	70	51	51	51	34	34	34
1	93	88	85	82	82	79	76	73	61	59	58	45	44	43	30	29	29
2	84	77	72	67	75	69	65	60	54	51	48	40	38	36	27	26	25
3	77	68	61	56	69	61	55	51	48	44	41	35	33	31	24	23	21
4	71	60	53	47	63	54	48	43	43	38	35	32	29	26	22	20	19
5	65	54	46	41	58	48	42	37	38	33	30	28	25	23	19	18	16
6	60	48	41	35	53	43	37	32	34	30	26	26	23	20	18	16	14
7	55	43	36	31	49	39	33	28	31	26	23	23	20	18	16	14	13
8	51	39	32	27	45	36	29	25	28	24	20	21	18	16	15	13	12
9	47	36	29	24	42	32	26	22	26	21	18	20	16	14	14	12	10
10	44	33	26	21	39	30	24	20	24	19	16	18	15	13	13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1241	1241	1241
5°	1243	1222	1229
10°	1231	1198	1190
15°	1214	1158	1128
20°	1192	1104	1052
25°	1169	1043	979
30°	1138	980	886
35°	1108	913	804
40°	1078	843	711
45°	1042	766	626
50°	1005	688	543
55°	967	604	463
60°	922	517	381
65°	871	428	343
70°	810	346	311
75°	732	305	283
80°	619	256	245
85°	433	172	185

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1748 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	156.5	1.2
10°-20°	429.5	3.2
20°-30°	603.0	4.5
30°-40°	657.3	4.9
40°-50°	604.2	4.5
50°-60°	474.5	3.5
60°-70°	308.9	2.3
70°-80°	159.0	1.2
80°-90°	46.6	0.3
90°-100°	112.4	0.8
100°-110°	418.9	3.1
110°-120°	1111.0	8.3
120°-130°	1842.7	13.7
130°-140°	1957.4	14.6
140°-150°	1819.2	13.5
150°-160°	1462.6	10.9
160°-170°	942.4	7.0
170°-180°	324.4	2.4
0°-30°	1189.0	8.9
0°-40°	1846.3	13.7
0°-60°	2924.9	21.8
0°-90°	3439.3	25.6
90°-120°	1642.3	12.2
90°-150°	7261.7	54.1
90°-180°	9991.0	74.4
0°-180°	13430.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1669	1669	1669	1669	1669	
5°	1669	1662	1642	1656	1651	158
15°	1588	1571	1520	1491	1476	447
25°	1441	1393	1293	1231	1208	663
35°	1242	1165	1032	937	903	777
45°	1015	914	755	648	612	784
55°	772	654	491	400	372	690
65°	521	399	263	212	207	517
75°	278	172	121	110	109	294
85°	65	33	29	29	29	75
90°	2	30	49	62	66	12
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	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1669.4	1669.4	1669.4	1669.4	1669.4
2.5°	1677.0	1669.4	1652.7	1668.0	1664.9
5°	1669.4	1661.8	1642.1	1655.8	1651.3
7.5°	1655.8	1646.8	1625.7	1631.5	1624.1
10°	1637.7	1627.1	1596.9	1592.3	1583.4
12.5°	1615.1	1601.4	1560.5	1551.6	1534.9
15°	1587.8	1571.1	1519.8	1491.2	1476.1
17.5°	1556.1	1531.9	1468.4	1435.2	1411.0
20°	1519.8	1489.6	1414.0	1376.4	1343.0
22.5°	1480.6	1445.8	1358.1	1306.8	1284.3
25°	1441.3	1392.9	1293.1	1231.4	1208.5
27.5°	1394.5	1343.0	1232.8	1161.8	1126.9
30°	1344.6	1287.1	1166.2	1089.3	1048.5
32.5°	1296.3	1226.7	1102.9	1012.2	974.4
35°	1242.0	1164.8	1031.9	936.7	903.4
37.5°	1189.0	1105.8	965.4	861.1	823.4
40°	1133.1	1042.5	895.9	788.7	749.4
42.5°	1075.6	979.0	826.4	714.5	676.9
45°	1015.3	914.0	755.4	648.1	611.8
47.5°	957.9	850.7	687.5	580.1	546.9
50°	894.4	787.1	620.9	516.6	485.0
52.5°	832.4	719.1	557.5	457.7	429.1
55°	772.0	654.1	491.0	400.4	371.7
57.5°	710.1	589.2	432.1	347.5	323.3
60°	646.6	525.7	370.1	293.1	269.0
62.5°	584.8	463.9	317.2	244.8	232.8
65°	521.3	398.8	262.9	211.6	206.9
67.5°	460.9	338.4	211.6	185.8	181.3
70°	397.4	279.5	175.2	160.2	154.0
72.5°	337.0	225.1	146.5	134.5	131.5
75°	277.9	172.2	120.9	110.3	108.9
77.5°	219.1	122.3	95.2	89.2	86.0
80°	164.6	87.7	72.4	66.5	66.5
82.5°	114.8	59.0	49.9	46.8	46.8
85°	64.9	33.2	28.7	28.7	28.7
87.5°	24.2	12.0	12.0	10.6	10.6
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

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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	5.02	5.69	6.17	6.82	8.40	1.00	1.66	2.14	2.79	4.38
	3H	6.69	7.28	7.84	8.42	10.02	2.17	2.77	3.33	3.91	5.51
	4H	7.29	7.85	8.45	9.00	10.60	2.62	3.18	3.78	4.32	5.93
	6H	7.70	8.22	8.87	9.37	10.98	2.93	3.45	4.10	4.59	6.21
	8H	7.83	8.32	9.00	9.48	11.08	3.02	3.51	4.19	4.67	6.28
	12H	7.88	8.35	9.06	9.50	11.13	3.06	3.53	4.23	4.68	6.31
4H	2H	5.02	5.59	6.19	6.73	8.33	1.57	2.14	2.74	3.28	4.88
	3H	6.84	7.31	8.01	8.47	10.09	2.91	3.38	4.08	4.54	6.16
	4H	7.52	7.96	8.70	9.11	10.74	3.45	3.88	4.63	5.04	6.67
	6H	8.03	8.40	9.21	9.58	11.20	3.86	4.23	5.05	5.41	7.03
	8H	8.20	8.55	9.38	9.72	11.36	3.99	4.34	5.17	5.50	7.14
	12H	8.29	8.60	9.49	9.78	11.43	4.05	4.36	5.25	5.54	7.19
8H	4H	7.48	7.82	8.66	8.99	10.63	3.72	4.07	4.90	5.23	6.87
	6H	8.04	8.32	9.24	9.54	11.17	4.24	4.52	5.43	5.73	7.37
	8H	8.26	8.50	9.46	9.69	11.35	4.43	4.67	5.63	5.86	7.52
	12H	8.39	8.61	9.60	9.79	11.48	4.54	4.76	5.75	5.94	7.63
12H	4H	7.42	7.74	8.62	8.92	10.56	3.72	4.03	4.91	5.21	6.86
	6H	8.02	8.26	9.22	9.45	11.11	4.28	4.53	5.49	5.72	7.38
	8H	8.23	8.45	9.44	9.63	11.32	4.49	4.71	5.70	5.89	7.58

END OF REPORT