

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: P927740

Luminaire Tested: DFN2DIP-HX4F0-100D050US840-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927740
REPORT IS A COMBINATION OF REPORTS P900849 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D050US840-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

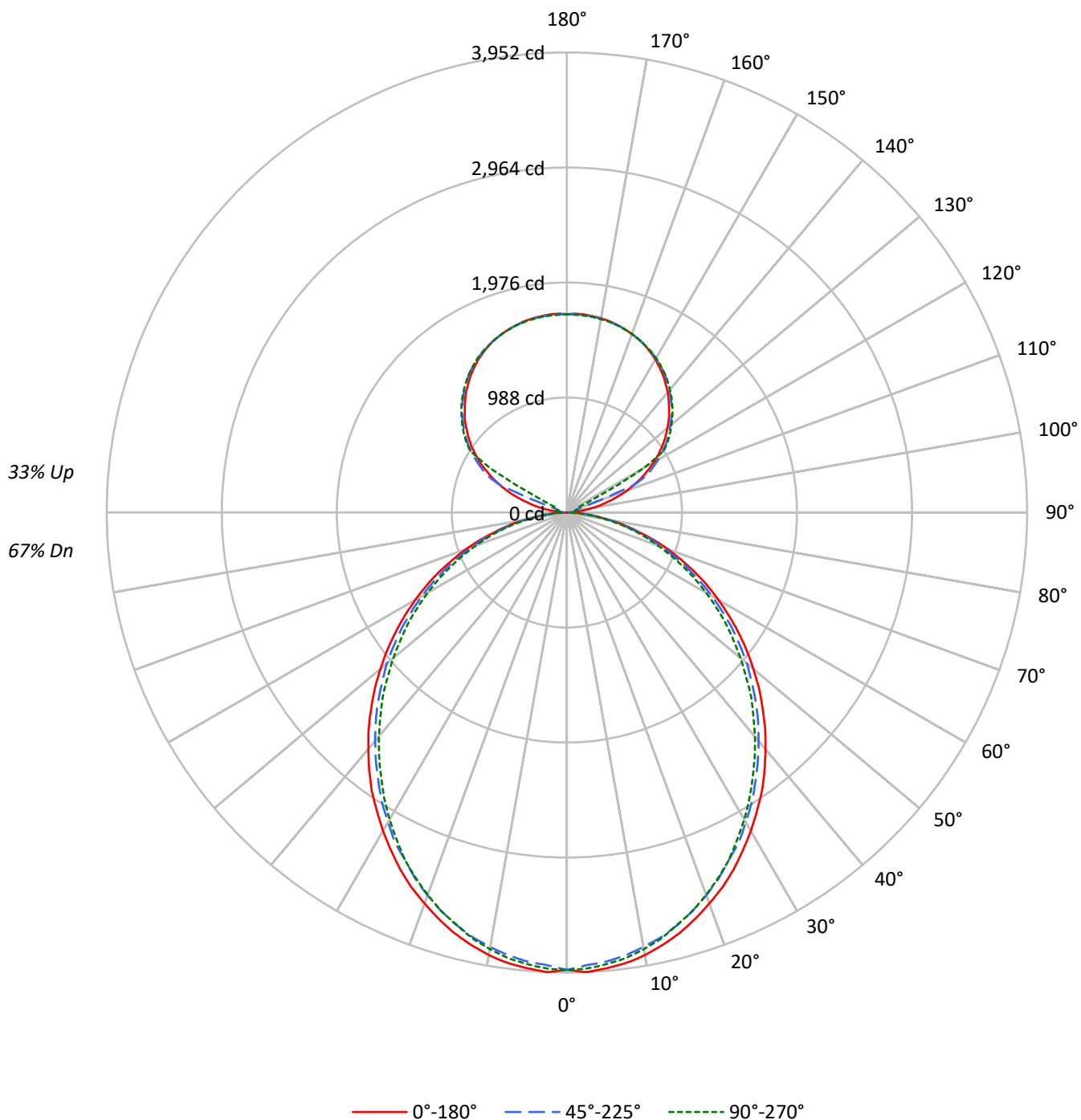
Lumens per Lamp: N/A
Luminaire Lumens: 14995.6 lumens
Efficiency: N/A
Efficacy: 109.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 137
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71
1	102	97	93	90	95	92	88	85	81	79	76	72	70	68	63	62	60
2	92	85	79	73	87	80	75	70	71	67	63	63	60	57	56	53	51
3	84	75	67	61	79	71	64	58	63	58	53	56	52	48	49	46	43
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	33
6	66	53	45	39	62	50	43	37	45	39	34	41	35	32	36	32	29
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2922	2922	2922
5°	2927	2881	2900
10°	2903	2843	2861
15°	2861	2796	2800
20°	2803	2731	2737
25°	2746	2654	2665
30°	2674	2582	2573
35°	2606	2497	2475
40°	2523	2411	2382
45°	2440	2325	2288
50°	2348	2235	2178
55°	2253	2130	2077
60°	2145	2006	1961
65°	2028	1878	1824
70°	1878	1721	1677
75°	1671	1534	1542
80°	1421	1295	1283
85°	1031	882	853

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2440 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	369.8	2.5
10°-20°	1040.5	6.9
20°-30°	1529.1	10.2
30°-40°	1776.0	11.8
40°-50°	1773.8	11.8
50°-60°	1546.7	10.3
60°-70°	1143.4	7.6
70°-80°	646.9	4.3
80°-90°	173.7	1.2
90°-100°	56.2	0.4
100°-110°	209.5	1.4
110°-120°	555.5	3.7
120°-130°	921.4	6.1
130°-140°	978.7	6.5
140°-150°	909.6	6.1
150°-160°	731.3	4.9
160°-170°	471.2	3.1
170°-180°	162.2	1.1
0°-30°	2939.5	19.6
0°-40°	4715.5	31.4
0°-60°	8036.0	53.6
0°-90°	10000.1	66.7
90°-120°	821.2	5.5
90°-150°	3630.8	24.2
90°-180°	4996.0	33.3
0°-180°	14995.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3929	3929	3929	3929	3929	
5°	3929	3914	3873	3903	3896	373
15°	3740	3718	3669	3684	3665	1053
25°	3385	3355	3291	3298	3291	1558
35°	2921	2883	2822	2800	2781	1824
45°	2377	2350	2293	2252	2237	1834
55°	1799	1776	1730	1685	1666	1608
65°	1213	1190	1152	1118	1100	1199
75°	635	627	608	586	593	677
85°	155	151	148	136	132	173
90°	1	15	25	31	33	14
95°	80	39	48	54	53	95
105°	375	412	75	89	94	401
115°	709	730	761	190	101	698
125°	1002	1018	1042	1050	1054	894
135°	1240	1260	1271	1284	1281	958
145°	1439	1438	1459	1467	1461	900
155°	1584	1573	1588	1596	1586	730
165°	1669	1662	1666	1674	1666	472
175°	1708	1699	1702	1710	1698	163
180°	1704	1704	1704	1704	1704	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3929.2	3929.2	3929.2	3929.2	3929.2
2.5°	3952.1	3933.2	3891.5	3929.2	3922.0
5°	3929.2	3914.4	3872.7	3902.8	3895.5
7.5°	3902.8	3880.3	3838.6	3869.0	3861.5
10°	3861.5	3835.0	3789.7	3819.8	3808.6
12.5°	3804.5	3782.1	3736.8	3755.6	3748.0
15°	3740.4	3718.0	3668.6	3683.9	3665.1
17.5°	3661.0	3638.6	3589.2	3608.1	3589.2
20°	3574.0	3551.6	3498.7	3509.9	3495.0
22.5°	3487.4	3453.4	3404.0	3404.0	3396.5
25°	3385.3	3355.2	3291.0	3298.2	3291.0
27.5°	3271.8	3245.3	3196.4	3185.2	3166.3
30°	3158.8	3128.3	3071.7	3060.5	3045.3
32.5°	3037.7	3015.3	2954.7	2931.9	2916.6
35°	2920.6	2883.0	2822.4	2799.6	2780.7
37.5°	2788.4	2754.2	2693.7	2667.3	2648.4
40°	2652.4	2621.9	2561.5	2527.8	2512.6
42.5°	2520.2	2489.7	2429.6	2391.5	2369.1
45°	2376.7	2350.2	2293.3	2252.0	2236.8
47.5°	2236.8	2210.4	2149.8	2108.1	2085.6
50°	2089.3	2070.4	2017.5	1964.6	1945.8
52.5°	1945.8	1919.3	1870.4	1828.7	1802.3
55°	1798.7	1775.8	1730.5	1685.2	1666.4
57.5°	1651.1	1632.2	1583.0	1537.7	1522.5
60°	1503.6	1488.7	1435.8	1394.1	1382.9
62.5°	1360.1	1333.6	1296.0	1258.3	1243.1
65°	1213.0	1190.2	1152.5	1118.4	1099.6
67.5°	1061.9	1042.6	1009.0	982.5	967.3
70°	921.9	906.7	872.7	846.2	831.4
72.5°	778.5	763.2	744.4	718.0	706.7
75°	634.6	627.4	608.1	585.7	593.3
77.5°	506.3	491.1	483.4	472.2	461.0
80°	378.0	374.0	366.4	355.1	347.6
82.5°	257.0	257.0	253.4	238.1	238.1
85°	154.7	151.2	147.5	135.9	132.3
87.5°	68.2	60.5	52.9	41.7	37.7
90°	1.2	14.7	24.6	30.9	33.2
92.5°	30.9	26.0	29.6	32.1	33.2
95°	80.1	39.4	48.1	54.3	53.0
97.5°	144.2	43.2	62.8	66.6	67.8
100°	218.3	49.4	70.3	80.1	82.6
102.5°	299.6	297.2	72.8	86.2	90.1
105°	374.8	411.9	75.2	88.8	93.7
107.5°	462.4	493.1	77.8	91.2	96.2
110°	546.3	572.1	215.8	92.5	97.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	625.2	647.3	626.4	94.9	98.7
115°	709.0	729.9	760.8	189.9	101.2
117.5°	781.7	806.3	827.4	650.9	328.0
120°	863.1	881.6	903.8	918.6	752.1
122.5°	932.0	951.8	976.6	983.9	985.3
125°	1002.3	1018.5	1041.9	1050.5	1054.2
127.5°	1066.4	1083.7	1102.4	1114.6	1115.8
130°	1126.9	1146.7	1160.2	1173.8	1172.7
132.5°	1188.6	1204.7	1218.1	1229.3	1228.1
135°	1240.4	1260.2	1271.1	1283.7	1281.1
137.5°	1294.6	1309.4	1321.8	1334.1	1330.5
140°	1347.6	1357.6	1371.0	1382.1	1376.1
142.5°	1392.1	1400.8	1416.7	1426.5	1420.4
145°	1439.0	1437.7	1458.6	1467.2	1461.1
147.5°	1479.6	1475.8	1496.8	1503.0	1498.1
150°	1519.0	1510.5	1530.1	1537.5	1531.4
152.5°	1552.3	1542.5	1560.9	1568.4	1559.7
155°	1584.4	1573.4	1588.1	1595.5	1585.7
157.5°	1610.2	1600.4	1611.5	1620.2	1610.2
160°	1632.5	1625.1	1632.5	1639.8	1631.2
162.5°	1652.1	1644.9	1650.9	1659.6	1648.5
165°	1669.4	1662.1	1665.8	1674.3	1665.8
167.5°	1683.0	1675.6	1679.4	1688.0	1676.9
170°	1694.1	1686.7	1689.2	1697.8	1686.7
172.5°	1701.5	1694.1	1696.7	1705.2	1694.1
175°	1707.7	1699.0	1701.5	1710.1	1697.8
177.5°	1710.1	1701.5	1702.8	1711.4	1700.3
180°	1703.9	1703.9	1703.9	1703.9	1703.9

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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	12.41	13.44	13.21	14.27	15.28	11.98	13.01	12.78	13.84	14.85
	3H	14.08	15.01	14.90	15.85	16.89	13.61	14.54	14.42	15.37	16.41
	4H	14.68	15.56	15.51	16.40	17.45	14.21	15.08	15.04	15.92	16.97
	6H	15.09	15.90	15.93	16.75	17.81	14.61	15.42	15.46	16.27	17.34
	8H	15.20	15.97	16.05	16.84	17.90	14.73	15.50	15.58	16.36	17.43
	12H	15.25	15.99	16.11	16.85	17.94	14.77	15.51	15.63	16.37	17.46
4H	2H	12.89	13.77	13.73	14.61	15.66	12.55	13.43	13.38	14.27	15.32
	3H	14.78	15.51	15.62	16.38	17.45	14.38	15.12	15.23	15.99	17.06
	4H	15.50	16.17	16.36	17.04	18.13	15.09	15.76	15.95	16.63	17.72
	6H	16.02	16.60	16.90	17.50	18.59	15.61	16.19	16.49	17.09	18.18
	8H	16.18	16.72	17.06	17.61	18.72	15.77	16.31	16.64	17.19	18.30
	12H	16.26	16.75	17.16	17.66	18.77	15.84	16.32	16.74	17.23	18.35
8H	4H	15.71	16.25	16.59	17.14	18.25	15.35	15.89	16.23	16.78	17.89
	6H	16.35	16.80	17.25	17.73	18.84	15.99	16.43	16.89	17.36	18.47
	8H	16.57	16.97	17.49	17.89	19.02	16.20	16.60	17.12	17.52	18.65
	12H	16.71	17.06	17.63	17.98	19.16	16.33	16.68	17.25	17.59	18.77
12H	4H	15.70	16.19	16.60	17.10	18.21	15.35	15.84	16.25	16.75	17.86
	6H	16.38	16.78	17.30	17.70	18.83	16.03	16.43	16.94	17.35	18.48
	8H	16.63	16.98	17.55	17.90	19.08	16.27	16.62	17.19	17.54	18.72