

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: P908252

Luminaire Tested: DFN2DIP-HX4F0-100D050US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908252
REPORT IS A COMBINATION OF REPORTS P899329 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D050US840-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

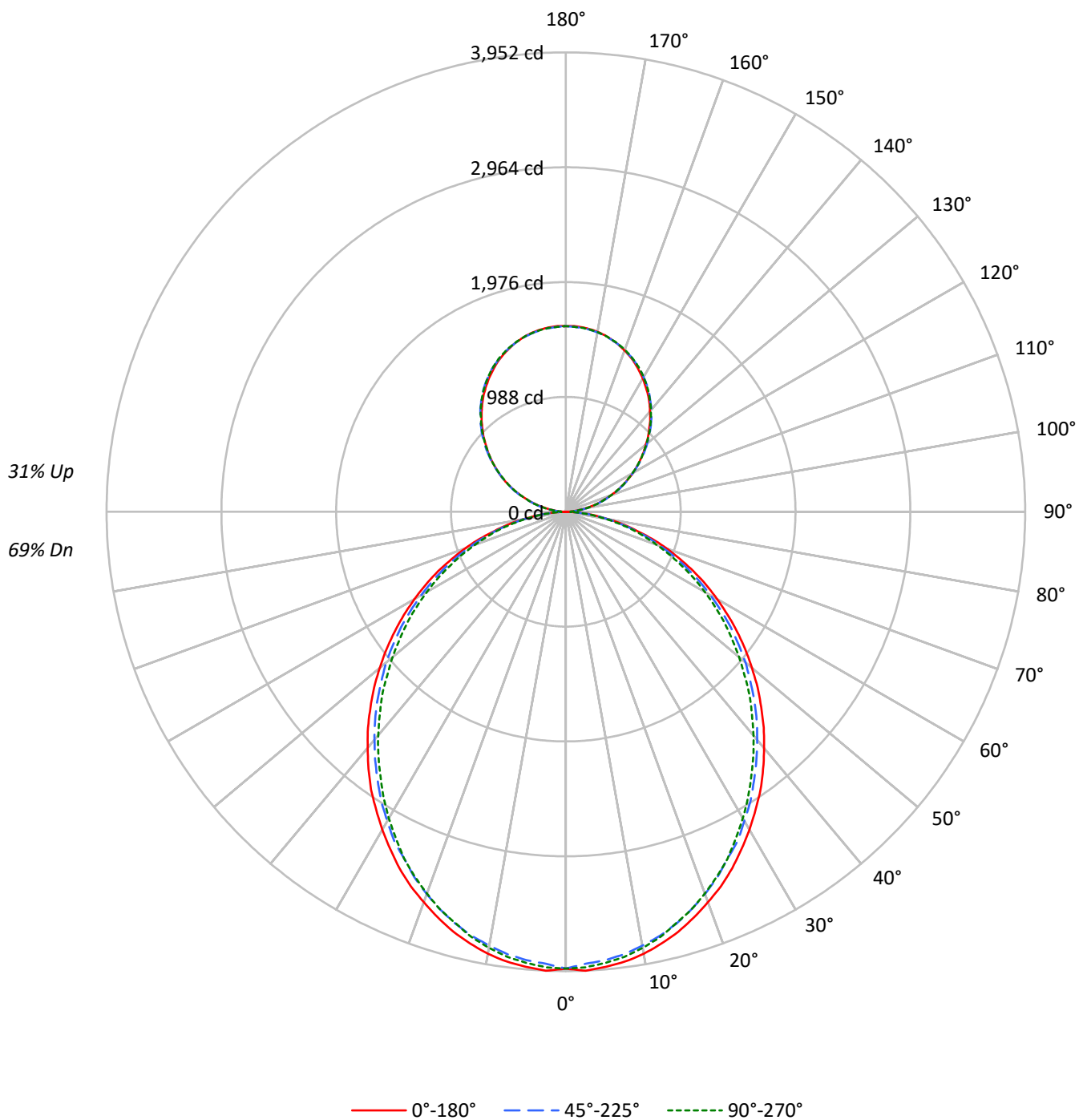
Lumens per Lamp: N/A
Luminaire Lumens: 14466.3 lumens
Efficiency: N/A
Efficacy: 113.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 128
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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	26
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2922	2922	2922
5°	2927	2881	2901
10°	2903	2843	2862
15°	2861	2796	2800
20°	2803	2732	2738
25°	2746	2654	2665
30°	2675	2582	2573
35°	2607	2497	2475
40°	2523	2411	2383
45°	2440	2325	2288
50°	2349	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	2.6
10°-20°	1040.6	7.2
20°-30°	1529.3	10.6
30°-40°	1776.1	12.3
40°-50°	1773.9	12.3
50°-60°	1546.8	10.7
60°-70°	1143.4	7.9
70°-80°	646.9	4.5
80°-90°	175.3	1.2
90°-100°	98.8	0.7
100°-110°	314.0	2.2
110°-120°	537.3	3.7
120°-130°	706.6	4.9
130°-140°	793.2	5.5
140°-150°	777.8	5.4
150°-160°	652.5	4.5
160°-170°	432.7	3.0
170°-180°	151.2	1.0
0°-30°	2939.7	20.3
0°-40°	4715.8	32.6
0°-60°	8036.5	55.6
0°-90°	10002.2	69.1
90°-120°	950.1	6.6
90°-150°	3227.7	22.3
90°-180°	4464.0	30.9
0°-180°	14466.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3930	3930	3930	3930	3930	
5°	3930	3915	3873	3903	3896	373
15°	3741	3718	3669	3684	3665	1054
25°	3386	3355	3291	3298	3291	1558
35°	2921	2883	2823	2800	2781	1824
45°	2377	2350	2293	2252	2237	1834
55°	1799	1776	1731	1685	1666	1608
65°	1213	1190	1153	1118	1100	1199
75°	635	627	608	586	593	677
85°	155	151	148	136	132	173
90°	1	17	47	44	46	14
95°	70	84	86	86	84	78
105°	290	294	297	299	299	306
115°	539	547	544	543	539	533
125°	784	796	792	788	787	701
135°	1014	1029	1032	1031	1027	784
145°	1232	1241	1249	1250	1245	769
155°	1408	1412	1416	1423	1419	648
165°	1532	1530	1530	1540	1533	432
175°	1594	1590	1587	1597	1589	151
180°	1597	1597	1597	1597	1597	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3929.5	3929.5	3929.5	3929.5	3929.5
2.5°	3952.3	3933.4	3891.7	3929.5	3922.2
5°	3929.5	3914.6	3872.9	3903.0	3895.8
7.5°	3903.0	3880.5	3838.8	3869.3	3861.7
10°	3861.7	3835.3	3789.9	3820.0	3808.8
12.5°	3804.8	3782.4	3737.0	3755.9	3748.2
15°	3740.6	3718.2	3668.8	3684.1	3665.3
17.5°	3661.3	3638.8	3589.5	3608.4	3589.5
20°	3574.2	3551.8	3498.9	3510.1	3495.2
22.5°	3487.7	3453.6	3404.3	3404.3	3396.7
25°	3385.5	3355.4	3291.3	3298.4	3291.3
27.5°	3272.0	3245.5	3196.6	3185.4	3166.5
30°	3159.0	3128.5	3071.9	3060.7	3045.5
32.5°	3037.9	3015.5	2954.9	2932.0	2916.8
35°	2920.8	2883.2	2822.6	2799.8	2780.9
37.5°	2788.5	2754.4	2693.9	2667.5	2648.6
40°	2652.6	2622.1	2561.6	2528.0	2512.7
42.5°	2520.3	2489.8	2429.7	2391.7	2369.2
45°	2376.8	2350.4	2293.4	2252.1	2237.0
47.5°	2237.0	2210.5	2149.9	2108.2	2085.8
50°	2089.4	2070.5	2017.6	1964.7	1945.9
52.5°	1945.9	1919.5	1870.5	1828.9	1802.4
55°	1798.8	1775.9	1730.6	1685.3	1666.5
57.5°	1651.2	1632.3	1583.1	1537.8	1522.6
60°	1503.7	1488.8	1435.9	1394.2	1383.0
62.5°	1360.2	1333.7	1296.1	1258.4	1243.1
65°	1213.1	1190.2	1152.6	1118.4	1099.6
67.5°	1062.0	1042.7	1009.1	982.6	967.4
70°	922.0	906.8	872.7	846.3	831.4
72.5°	778.5	763.3	744.5	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	374.1	366.4	355.2	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°	1.4	17.4	47.2	44.3	45.7
92.5°	29.9	40.4	41.9	43.3	43.3
95°	70.3	83.8	86.1	86.1	83.8
97.5°	116.9	129.5	134.8	134.8	134.8
100°	170.9	182.0	185.8	185.8	184.4
102.5°	227.7	235.9	241.2	242.7	241.2
105°	289.8	293.7	296.6	298.9	298.9
107.5°	351.4	357.2	357.2	358.2	351.4
110°	411.1	418.9	418.9	418.9	415.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	475.6	483.8	482.4	478.6	475.6
115°	539.2	546.9	544.5	543.1	539.2
117.5°	602.3	612.9	606.1	602.3	598.4
120°	665.8	676.4	665.8	665.8	661.5
122.5°	723.6	737.1	730.3	726.5	723.6
125°	784.3	796.3	792.4	788.1	786.7
127.5°	843.4	858.4	853.1	847.3	843.4
130°	898.9	916.2	913.7	910.9	905.5
132.5°	961.0	974.4	975.4	968.7	964.8
135°	1014.4	1029.3	1032.2	1030.8	1026.9
137.5°	1074.1	1086.1	1088.5	1087.5	1081.8
140°	1126.5	1138.6	1145.3	1145.3	1140.0
142.5°	1180.4	1192.6	1196.4	1197.8	1192.6
145°	1231.5	1241.1	1248.8	1250.3	1245.0
147.5°	1277.3	1289.3	1295.1	1297.5	1292.1
150°	1324.4	1332.6	1337.9	1342.2	1337.9
152.5°	1366.3	1374.5	1381.2	1386.5	1381.2
155°	1408.2	1412.0	1416.3	1423.1	1418.8
157.5°	1444.3	1447.1	1449.6	1459.3	1452.5
160°	1476.5	1479.5	1480.9	1489.0	1483.3
162.5°	1506.4	1506.4	1507.8	1517.0	1510.3
165°	1532.0	1530.5	1530.5	1540.1	1533.4
167.5°	1555.0	1550.6	1550.6	1560.3	1553.6
170°	1572.4	1568.5	1567.1	1576.7	1568.5
172.5°	1584.4	1580.5	1579.1	1588.7	1580.5
175°	1594.1	1590.1	1587.3	1596.9	1588.7
177.5°	1599.3	1595.5	1592.6	1600.7	1592.6
180°	1596.9	1596.9	1596.9	1596.9	1596.9

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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	12.60	13.66	13.37	14.46	15.43	12.17	13.23	12.94	14.03	15.00
	3H	14.28	15.23	15.06	16.04	17.04	13.80	14.76	14.59	15.57	16.56
	4H	14.87	15.78	15.68	16.59	17.60	14.40	15.30	15.20	16.12	17.13
	6H	15.29	16.12	16.10	16.94	17.96	14.81	15.64	15.63	16.46	17.49
	8H	15.40	16.19	16.22	17.03	18.06	14.92	15.71	15.75	16.56	17.58
	12H	15.45	16.21	16.28	17.04	18.09	14.97	15.73	15.80	16.56	17.61
4H	2H	13.09	13.99	13.89	14.80	15.81	12.74	13.65	13.55	14.46	15.47
	3H	14.97	15.73	15.79	16.57	17.60	14.58	15.33	15.40	16.18	17.21
	4H	15.70	16.38	16.53	17.23	18.28	15.29	15.98	16.12	16.82	17.88
	6H	16.22	16.82	17.07	17.69	18.75	15.81	16.41	16.66	17.28	18.34
	8H	16.38	16.93	17.23	17.80	18.87	15.97	16.52	16.82	17.39	18.46
	12H	16.46	16.96	17.34	17.85	18.92	16.04	16.54	16.91	17.43	18.50
8H	4H	15.91	16.46	16.76	17.33	18.40	15.55	16.10	16.40	16.97	18.04
	6H	16.55	17.01	17.43	17.92	18.99	16.19	16.65	17.07	17.55	18.63
	8H	16.77	17.18	17.67	18.08	19.17	16.40	16.81	17.30	17.71	18.80
	12H	16.92	17.28	17.81	18.17	19.31	16.53	16.89	17.43	17.78	18.93
12H	4H	15.90	16.40	16.78	17.29	18.37	15.55	16.05	16.43	16.94	18.01
	6H	16.58	16.99	17.47	17.89	18.98	16.23	16.64	17.12	17.54	18.63
	8H	16.83	17.19	17.73	18.09	19.23	16.48	16.84	17.37	17.73	18.87