

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: P908177

Luminaire Tested: DFN2DIP-HX4F0-050D120US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908177
REPORT IS A COMBINATION OF REPORTS P899446 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D120US840-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

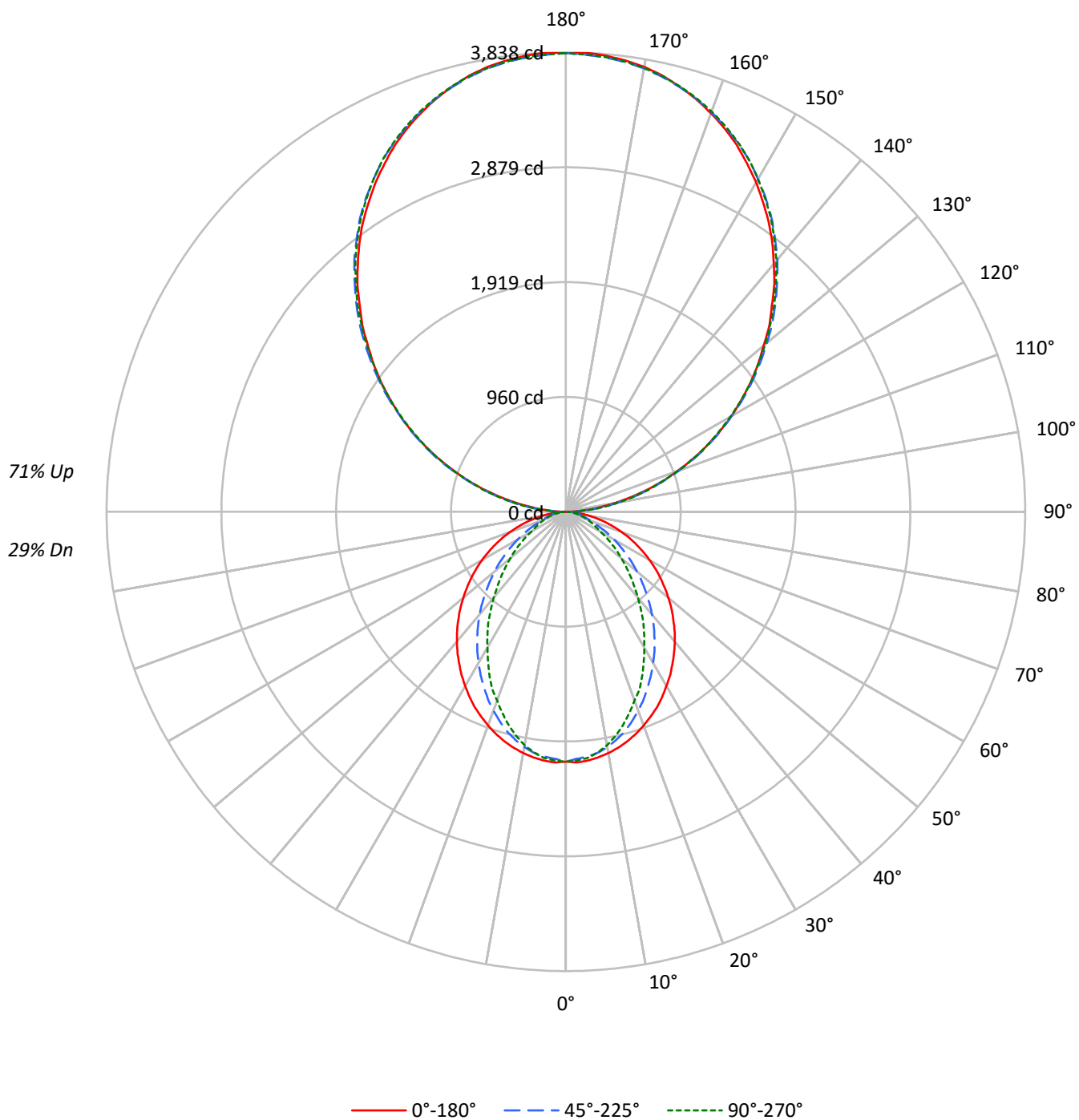
Lumens per Lamp: N/A
Luminaire Lumens: 15016.7 lumens
Efficiency: N/A
Efficacy: 128.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 116.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
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	102	102	102	102	91	91	91	91	71	71	71	53	53	53	37	37	37
1	93	89	86	82	83	80	77	74	63	61	59	47	46	45	33	32	31
2	85	78	72	68	76	70	65	61	55	52	49	42	40	38	29	28	27
3	78	69	62	56	69	62	56	51	49	45	42	37	34	32	26	24	23
4	71	61	54	48	64	55	49	44	44	39	36	33	30	28	23	22	20
5	65	54	47	41	58	49	42	38	39	34	31	30	27	24	21	19	18
6	60	49	41	36	54	44	37	33	35	30	27	27	24	21	19	17	16
7	56	44	36	31	50	40	33	29	32	27	24	25	21	19	18	16	14
8	52	40	32	27	46	36	30	25	29	24	21	22	19	17	16	14	13
9	48	36	29	24	43	33	27	22	27	22	19	21	17	15	15	13	11
10	45	33	26	22	40	30	24	20	24	20	17	19	16	14	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1552	1552	1552
5°	1554	1527	1537
10°	1539	1497	1487
15°	1518	1448	1410
20°	1490	1380	1315
25°	1462	1304	1223
30°	1423	1225	1107
35°	1386	1141	1005
40°	1347	1054	888
45°	1303	957	782
50°	1257	860	679
55°	1209	755	579
60°	1153	646	477
65°	1089	535	429
70°	1012	432	389
75°	915	381	353
80°	774	320	307
85°	541	215	232

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2891 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	195.6	1.3
10°-20°	536.9	3.6
20°-30°	753.8	5.0
30°-40°	821.7	5.5
40°-50°	755.2	5.0
50°-60°	593.1	3.9
60°-70°	386.1	2.6
70°-80°	198.7	1.3
80°-90°	61.6	0.4
90°-100°	237.2	1.6
100°-110°	753.5	5.0
110°-120°	1289.5	8.6
120°-130°	1696.0	11.3
130°-140°	1903.6	12.7
140°-150°	1866.7	12.4
150°-160°	1565.9	10.4
160°-170°	1038.5	6.9
170°-180°	363.0	2.4
0°-30°	1486.3	9.9
0°-40°	2308.0	15.4
0°-60°	3656.4	24.3
0°-90°	4302.8	28.7
90°-120°	2280.2	15.2
90°-150°	7746.5	51.6
90°-180°	10714.0	71.3
0°-180°	15016.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2087	2087	2087	2087	2087	
5°	2087	2078	2053	2070	2064	198
15°	1985	1964	1900	1864	1845	559
25°	1802	1741	1617	1539	1511	829
35°	1552	1456	1290	1171	1129	972
45°	1269	1143	944	810	765	980
55°	965	818	614	500	465	862
65°	652	499	329	264	259	646
75°	348	215	151	138	136	368
85°	81	42	36	36	36	93
90°	3	42	113	106	110	15
95°	169	201	207	207	201	188
105°	696	705	712	718	718	734
115°	1294	1313	1307	1303	1294	1280
125°	1882	1911	1902	1892	1888	1682
135°	2434	2470	2477	2474	2465	1882
145°	2956	2979	2997	3001	2988	1847
155°	3380	3389	3399	3416	3405	1556
165°	3677	3673	3673	3696	3680	1037
175°	3826	3816	3810	3832	3813	363
180°	3832	3832	3832	3832	3832	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2086.9	2086.9	2086.9	2086.9	2086.9
2.5°	2096.3	2086.9	2066.1	2085.1	2081.2
5°	2086.9	2077.5	2052.9	2069.8	2064.3
7.5°	2069.8	2058.6	2032.2	2039.6	2030.1
10°	2047.2	2034.0	1996.3	1990.5	1979.2
12.5°	2018.9	2002.0	1950.9	1939.6	1918.7
15°	1984.9	1964.1	1900.0	1864.1	1845.2
17.5°	1945.2	1915.0	1835.6	1794.1	1763.8
20°	1900.0	1862.1	1767.7	1720.6	1678.9
22.5°	1850.9	1807.4	1697.8	1633.7	1605.4
25°	1801.7	1741.2	1616.6	1539.2	1510.8
27.5°	1743.2	1678.9	1541.1	1452.3	1408.9
30°	1680.9	1609.0	1457.9	1361.7	1310.6
32.5°	1620.4	1533.5	1378.8	1265.4	1218.1
35°	1552.5	1456.1	1290.0	1170.9	1129.3
37.5°	1486.3	1382.4	1206.9	1076.4	1029.4
40°	1416.4	1303.2	1119.8	985.8	936.8
42.5°	1344.7	1223.9	1033.1	893.2	846.2
45°	1269.2	1142.6	944.3	810.1	764.8
47.5°	1197.4	1063.4	859.4	725.2	683.7
50°	1118.1	984.0	776.3	645.8	606.3
52.5°	1040.6	898.9	696.9	572.3	536.4
55°	965.0	817.7	613.7	500.5	464.6
57.5°	887.7	736.6	540.2	434.4	404.1
60°	808.3	657.2	462.6	366.5	336.2
62.5°	730.9	579.9	396.6	306.0	290.9
65°	651.6	498.6	328.6	264.5	258.7
67.5°	576.0	423.0	264.5	232.3	226.6
70°	496.8	349.4	219.0	200.2	192.6
72.5°	421.2	281.3	183.2	168.1	164.3
75°	347.5	215.2	151.1	137.8	136.0
77.5°	273.9	152.9	119.1	111.4	107.6
80°	205.8	109.6	90.6	83.1	83.1
82.5°	143.5	73.7	62.3	58.5	58.5
85°	81.2	41.5	35.9	35.9	35.9
87.5°	30.3	15.0	15.0	13.2	13.2
90°	3.4	41.6	113.2	106.3	109.8
92.5°	71.6	97.0	100.5	104.0	104.0
95°	168.6	201.1	206.8	206.8	201.1
97.5°	280.7	310.8	323.6	323.6	323.6
100°	410.2	436.8	446.0	446.0	442.5
102.5°	546.5	566.1	578.9	582.4	578.9
105°	695.6	704.8	711.8	717.5	717.5
107.5°	843.4	857.4	857.4	859.6	843.4
110°	986.7	1005.2	1005.2	1005.2	996.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1141.6	1161.2	1157.7	1148.5	1141.6
115°	1294.0	1312.6	1306.8	1303.3	1294.0
117.5°	1445.4	1470.9	1454.7	1445.4	1436.2
120°	1598.0	1623.4	1598.0	1598.0	1587.6
122.5°	1736.7	1769.0	1752.8	1743.5	1736.7
125°	1882.2	1911.1	1901.9	1891.5	1887.9
127.5°	2024.4	2060.1	2047.4	2033.6	2024.4
130°	2157.2	2198.8	2193.0	2186.1	2173.3
132.5°	2306.2	2338.6	2340.9	2324.7	2315.5
135°	2434.5	2470.3	2477.3	2473.8	2464.6
137.5°	2577.8	2606.7	2612.4	2610.1	2596.3
140°	2703.7	2732.6	2748.8	2748.8	2736.0
142.5°	2833.2	2862.1	2871.2	2874.7	2862.1
145°	2955.6	2978.7	2997.2	3000.7	2988.0
147.5°	3065.3	3094.2	3108.2	3113.9	3101.2
150°	3178.7	3198.2	3211.0	3221.4	3211.0
152.5°	3279.1	3298.7	3315.0	3327.7	3315.0
155°	3379.6	3388.9	3399.3	3415.5	3405.1
157.5°	3466.4	3473.2	3479.0	3502.1	3486.0
160°	3543.7	3550.7	3554.1	3573.8	3559.9
162.5°	3615.3	3615.3	3618.9	3640.8	3624.6
165°	3676.6	3673.2	3673.2	3696.2	3680.1
167.5°	3732.1	3721.7	3721.7	3744.8	3728.6
170°	3773.7	3764.4	3760.9	3784.1	3764.4
172.5°	3802.5	3793.3	3789.8	3812.9	3793.3
175°	3825.7	3816.4	3809.5	3832.5	3812.9
177.5°	3838.4	3829.1	3822.1	3841.8	3822.1
180°	3832.5	3832.5	3832.5	3832.5	3832.5

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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	6.25	6.93	7.38	8.05	9.60	2.22	2.91	3.35	4.02	5.57
	3H	7.92	8.53	9.05	9.65	11.22	3.40	4.01	4.54	5.14	6.70
	4H	8.52	9.10	9.66	10.22	11.79	3.85	4.43	4.99	5.55	7.12
	6H	8.93	9.47	10.09	10.59	12.17	4.16	4.69	5.31	5.82	7.40
	8H	9.06	9.56	10.21	10.70	12.28	4.25	4.75	5.40	5.90	7.47
	12H	9.11	9.59	10.27	10.73	12.33	4.29	4.77	5.45	5.90	7.50
4H	2H	6.25	6.83	7.40	7.95	9.52	2.80	3.38	3.95	4.50	6.07
	3H	8.07	8.55	9.22	9.70	11.28	4.14	4.62	5.30	5.77	7.35
	4H	8.75	9.20	9.91	10.34	11.94	4.68	5.13	5.84	6.26	7.87
	6H	9.26	9.64	10.43	10.80	12.39	5.10	5.47	6.26	6.64	8.23
	8H	9.44	9.79	10.60	10.94	12.55	5.22	5.58	6.39	6.73	8.34
	12H	9.52	9.84	10.70	11.01	12.62	5.28	5.60	6.46	6.77	8.38
8H	4H	8.71	9.07	9.87	10.22	11.83	4.95	5.31	6.12	6.46	8.07
	6H	9.27	9.57	10.46	10.76	12.37	5.47	5.76	6.65	6.95	8.56
	8H	9.49	9.74	10.68	10.92	12.54	5.66	5.91	6.85	7.09	8.71
	12H	9.62	9.85	10.81	11.02	12.68	5.77	6.00	6.96	7.17	8.83
12H	4H	8.66	8.98	9.84	10.14	11.75	4.95	5.27	6.13	6.44	8.05
	6H	9.25	9.50	10.44	10.68	12.30	5.52	5.77	6.70	6.94	8.57
	8H	9.46	9.69	10.65	10.86	12.52	5.72	5.95	6.91	7.12	8.77

END OF REPORT