

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: P927584

Luminaire Tested: DFN2DIP-HX4F0-050D110US840-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927584
REPORT IS A COMBINATION OF REPORTS P900947 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D110US840-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

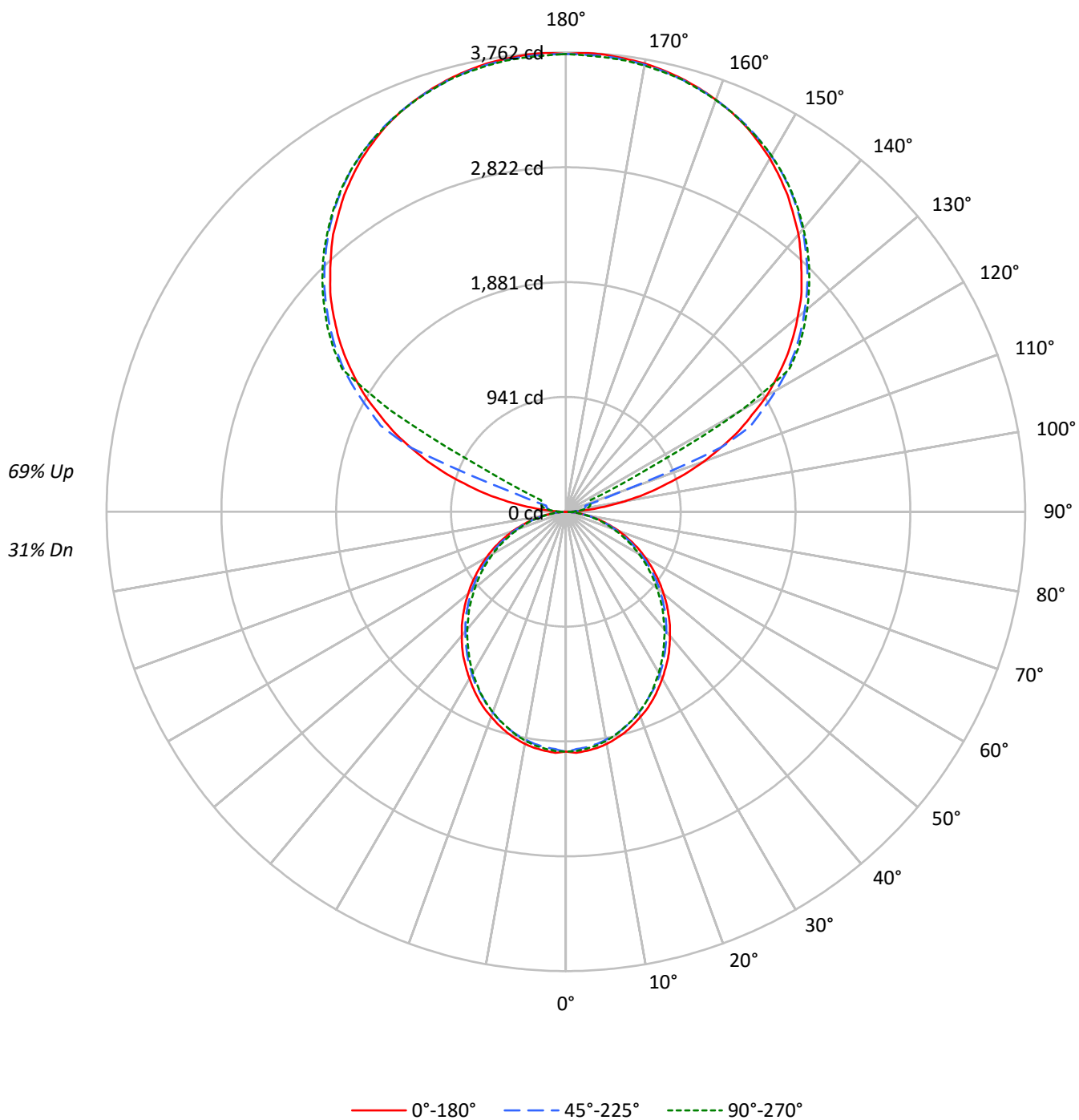
Lumens per Lamp: N/A
Luminaire Lumens: 15995.2 lumens
Efficiency: N/A
Efficacy: 122.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 130.9
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	103	103	103	103	92	92	92	92	73	73	73	55	55	55	39	39	39
1	94	89	86	82	84	80	77	74	64	62	60	48	47	46	34	34	33
2	85	78	72	67	76	70	65	61	56	52	49	43	40	38	30	29	28
3	78	69	61	56	70	62	56	51	49	45	41	38	35	32	27	25	24
4	71	61	53	47	64	55	48	43	44	39	35	33	30	28	24	22	20
5	65	54	46	40	58	49	42	37	39	34	30	30	27	24	22	19	18
6	60	48	40	35	54	44	37	32	35	30	26	27	24	21	20	17	15
7	55	43	36	30	50	39	33	28	32	27	23	25	21	18	18	15	14
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12
9	48	36	28	24	43	32	26	22	26	22	18	21	17	15	15	13	11
10	44	33	26	21	40	30	24	19	24	19	16	19	16	13	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1461	1461	1461
5°	1463	1441	1450
10°	1451	1421	1431
15°	1430	1398	1400
20°	1402	1366	1369
25°	1373	1327	1332
30°	1337	1291	1286
35°	1303	1248	1238
40°	1261	1205	1191
45°	1220	1162	1144
50°	1174	1117	1089
55°	1126	1065	1038
60°	1073	1003	980
65°	1014	939	912
70°	939	860	839
75°	835	767	771
80°	711	648	641
85°	516	441	426

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1925 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.9	1.2
10°-20°	520.3	3.3
20°-30°	764.6	4.8
30°-40°	888.0	5.6
40°-50°	886.9	5.5
50°-60°	773.4	4.8
60°-70°	571.7	3.6
70°-80°	323.4	2.0
80°-90°	92.0	0.6
90°-100°	123.6	0.8
100°-110°	460.8	2.9
110°-120°	1222.1	7.6
120°-130°	2027.0	12.7
130°-140°	2153.1	13.5
140°-150°	2001.1	12.5
150°-160°	1608.8	10.1
160°-170°	1036.7	6.5
170°-180°	356.8	2.2
0°-30°	1469.7	9.2
0°-40°	2357.8	14.7
0°-60°	4018.0	25.1
0°-90°	5005.1	31.3
90°-120°	1806.5	11.3
90°-150°	7987.8	49.9
90°-180°	10990.0	68.7
0°-180°	15995.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1965	1965	1965	1965	1965	
5°	1965	1957	1936	1951	1948	186
15°	1870	1859	1834	1842	1832	527
25°	1693	1678	1646	1649	1646	779
35°	1460	1442	1411	1400	1390	912
45°	1188	1175	1147	1126	1118	917
55°	899	888	865	843	833	804
65°	606	595	576	559	550	600
75°	317	314	304	293	297	339
85°	77	76	74	68	66	86
90°	3	32	54	68	73	15
95°	176	87	106	120	117	209
105°	825	906	166	195	206	881
115°	1560	1606	1674	418	223	1535
125°	2205	2241	2292	2311	2319	1967
135°	2729	2772	2796	2824	2818	2108
145°	3166	3163	3209	3228	3214	1980
155°	3486	3461	3494	3510	3488	1606
165°	3673	3657	3665	3684	3665	1038
175°	3757	3738	3743	3762	3735	358
180°	3749	3749	3749	3749	3749	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1964.6	1964.6	1964.6	1964.6	1964.6
2.5°	1976.0	1966.6	1945.8	1964.6	1961.0
5°	1964.6	1957.2	1936.3	1951.3	1947.8
7.5°	1951.3	1940.1	1919.3	1934.6	1930.7
10°	1930.7	1917.5	1894.9	1909.8	1904.3
12.5°	1902.3	1891.1	1868.4	1877.8	1874.0
15°	1870.1	1858.9	1834.3	1842.0	1832.5
17.5°	1830.5	1819.3	1794.6	1804.0	1794.6
20°	1787.0	1775.8	1749.4	1754.9	1747.6
22.5°	1743.7	1726.7	1702.0	1702.0	1698.2
25°	1692.6	1677.6	1645.5	1649.1	1645.5
27.5°	1635.9	1622.6	1598.2	1592.6	1583.2
30°	1579.3	1564.2	1535.9	1530.3	1522.7
32.5°	1518.8	1507.6	1477.3	1465.9	1458.4
35°	1460.3	1441.5	1411.2	1399.8	1390.4
37.5°	1394.1	1377.2	1346.9	1333.6	1324.3
40°	1326.3	1311.0	1280.7	1263.9	1256.3
42.5°	1260.1	1244.9	1214.8	1195.7	1184.5
45°	1188.3	1175.1	1146.6	1126.0	1118.4
47.5°	1118.4	1105.1	1074.9	1054.0	1042.8
50°	1044.6	1035.2	1008.8	982.3	972.8
52.5°	972.8	959.6	935.2	914.4	901.1
55°	899.3	887.9	865.2	842.6	833.2
57.5°	825.5	816.1	791.5	768.9	761.2
60°	751.8	744.4	718.0	697.1	691.5
62.5°	680.1	666.9	648.0	629.1	621.5
65°	606.5	595.1	576.2	559.2	549.7
67.5°	531.0	521.4	504.5	491.3	483.6
70°	461.0	453.4	436.3	423.1	415.7
72.5°	389.3	381.6	372.2	359.0	353.3
75°	317.3	313.6	304.1	292.8	296.7
77.5°	253.2	245.5	241.7	236.1	230.5
80°	189.0	187.0	183.2	177.6	173.8
82.5°	128.4	128.4	126.6	119.1	119.1
85°	77.4	75.5	73.7	68.0	66.1
87.5°	34.0	30.3	26.5	20.8	18.9
90°	2.6	32.5	54.1	68.0	73.1
92.5°	68.0	57.1	65.0	70.6	73.1
95°	176.2	86.6	105.6	119.5	116.6
97.5°	317.3	95.0	138.1	146.5	149.1
100°	480.3	108.6	154.6	176.2	181.7
102.5°	659.0	653.8	160.1	189.7	198.1
105°	824.6	906.1	165.6	195.2	206.2
107.5°	1017.3	1084.8	171.1	200.6	211.7
110°	1201.8	1258.5	474.8	203.6	214.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1375.4	1424.0	1378.0	208.7	217.1
115°	1559.6	1605.7	1673.7	417.8	222.6
117.5°	1719.8	1773.9	1820.3	1432.1	721.5
120°	1898.8	1939.4	1988.4	2020.9	1654.7
122.5°	2050.6	2094.0	2148.5	2164.6	2167.5
125°	2205.2	2240.6	2292.1	2311.1	2319.2
127.5°	2346.3	2384.2	2425.1	2452.2	2454.8
130°	2479.3	2522.8	2552.4	2582.4	2579.8
132.5°	2614.9	2650.3	2680.0	2704.4	2701.9
135°	2729.0	2772.4	2796.5	2824.0	2818.5
137.5°	2848.1	2880.7	2908.0	2935.1	2927.0
140°	2964.8	2986.6	3016.3	3040.7	3027.2
142.5°	3062.6	3081.6	3116.7	3138.4	3124.8
145°	3165.7	3162.8	3208.8	3227.9	3214.4
147.5°	3255.0	3246.9	3293.0	3306.5	3295.9
150°	3341.9	3322.9	3366.4	3382.5	3369.0
152.5°	3415.0	3393.4	3434.0	3450.5	3431.5
155°	3485.6	3461.4	3493.9	3510.1	3488.5
157.5°	3542.6	3521.0	3545.5	3564.5	3542.6
160°	3591.6	3575.1	3591.6	3607.6	3588.6
162.5°	3634.7	3618.6	3632.1	3651.1	3626.7
165°	3672.7	3656.6	3664.7	3683.6	3664.7
167.5°	3702.6	3686.3	3694.7	3713.6	3689.2
170°	3727.2	3710.7	3716.2	3735.3	3710.7
172.5°	3743.2	3727.2	3732.6	3751.6	3727.2
175°	3756.8	3737.8	3743.2	3762.3	3735.3
177.5°	3762.3	3743.2	3746.2	3765.1	3740.7
180°	3748.8	3748.8	3748.8	3748.8	3748.8

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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	6.55	7.26	7.65	8.36	9.88	6.12	6.83	7.22	7.93	9.45
	3H	8.20	8.84	9.31	9.95	11.48	7.73	8.37	8.84	9.47	11.01
	4H	8.78	9.39	9.90	10.50	12.04	8.31	8.92	9.43	10.02	11.56
	6H	9.17	9.73	10.30	10.84	12.39	8.70	9.26	9.83	10.37	11.92
	8H	9.27	9.81	10.41	10.93	12.48	8.80	9.33	9.93	10.46	12.00
	12H	9.32	9.82	10.46	10.94	12.51	8.84	9.34	9.97	10.46	12.03
4H	2H	6.99	7.60	8.12	8.71	10.25	6.65	7.26	7.78	8.37	9.90
	3H	8.85	9.35	9.98	10.49	12.04	8.45	8.96	9.59	10.10	11.65
	4H	9.56	10.02	10.69	11.15	12.72	9.15	9.62	10.29	10.74	12.31
	6H	10.06	10.46	11.21	11.61	13.17	9.65	10.05	10.80	11.20	12.76
	8H	10.21	10.58	11.35	11.72	13.30	9.80	10.17	10.94	11.31	12.89
	12H	10.28	10.62	11.44	11.77	13.35	9.85	10.19	11.02	11.34	12.93
8H	4H	9.74	10.11	10.89	11.25	12.83	9.38	9.75	10.52	10.89	12.47
	6H	10.37	10.68	11.53	11.86	13.43	10.01	10.31	11.17	11.49	13.07
	8H	10.59	10.86	11.76	12.02	13.61	10.22	10.49	11.39	11.65	13.24
	12H	10.71	10.95	11.89	12.11	13.74	10.33	10.57	11.50	11.72	13.35
12H	4H	9.72	10.06	10.88	11.21	12.79	9.37	9.71	10.53	10.86	12.44
	6H	10.40	10.67	11.57	11.83	13.42	10.05	10.31	11.22	11.47	13.07
	8H	10.63	10.87	11.81	12.03	13.65	10.28	10.51	11.45	11.67	13.30