

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: P908021

Luminaire Tested: DFN2DIP-HX3F0-040D090US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908021
REPORT IS A COMBINATION OF REPORTS P899288 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-040D090US840-RLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

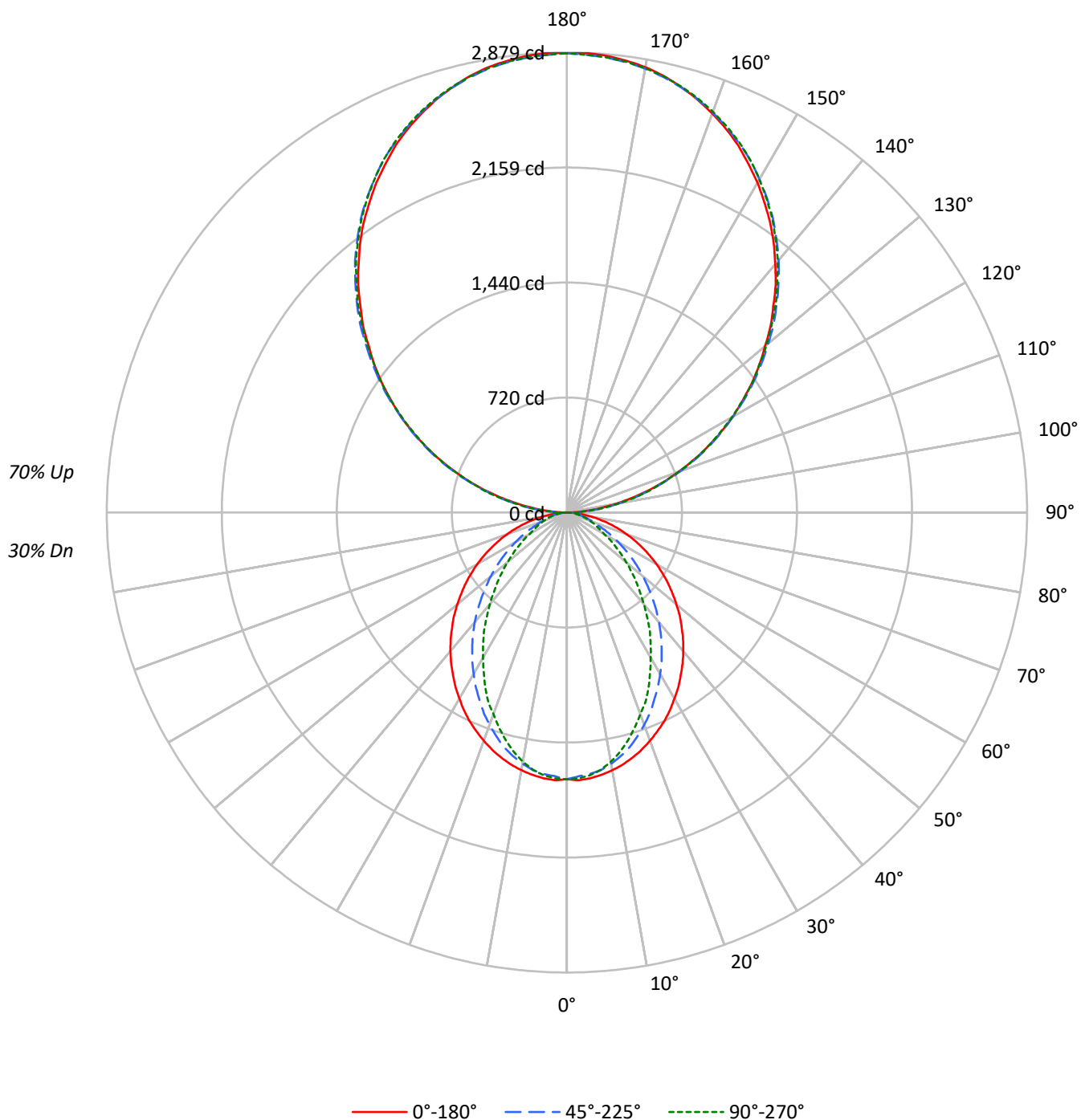
Lumens per Lamp: N/A
Luminaire Lumens: 11477.1 lumens
Efficiency: N/A
Efficacy: 108.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 105.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	92	92	92	92	72	72	72	54	54	54	38	38	38
1	94	89	86	83	84	80	77	75	64	62	60	48	47	46	34	33	32
2	85	78	73	68	76	71	66	62	56	53	50	43	40	38	30	29	28
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	25	24
4	71	61	54	48	64	55	49	44	44	40	36	34	31	28	24	22	21
5	66	55	47	41	59	49	43	38	40	35	31	30	27	25	22	20	18
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16
7	56	44	37	31	50	40	33	29	32	27	24	25	22	19	18	16	14
8	52	40	33	28	46	36	30	25	29	25	21	23	20	17	17	15	13
9	48	36	29	25	43	33	27	23	27	22	19	21	18	15	16	13	12
10	45	33	27	22	40	30	24	20	25	20	17	19	16	14	14	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1934	1934	1934
5°	1936	1902	1914
10°	1916	1863	1851
15°	1889	1800	1754
20°	1853	1714	1635
25°	1816	1618	1520
30°	1767	1519	1374
35°	1720	1413	1247
40°	1671	1304	1101
45°	1614	1183	968
50°	1555	1060	839
55°	1494	930	715
60°	1423	793	587
65°	1341	655	527
70°	1242	526	476
75°	1117	461	431
80°	936	382	370
85°	639	249	272

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2704 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	156.5	1.4
10°-20°	429.5	3.7
20°-30°	603.0	5.3
30°-40°	657.4	5.7
40°-50°	604.2	5.3
50°-60°	474.5	4.1
60°-70°	308.9	2.7
70°-80°	159.0	1.4
80°-90°	48.8	0.4
90°-100°	177.9	1.5
100°-110°	565.2	4.9
110°-120°	967.2	8.4
120°-130°	1272.0	11.1
130°-140°	1427.7	12.4
140°-150°	1400.0	12.2
150°-160°	1174.4	10.2
160°-170°	778.9	6.8
170°-180°	272.2	2.4
0°-30°	1189.0	10.4
0°-40°	1846.4	16.1
0°-60°	2925.1	25.5
0°-90°	3441.7	30.0
90°-120°	1710.2	14.9
90°-150°	5809.9	50.6
90°-180°	8035.0	70.0
0°-180°	11477.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1670	1670	1670	1670	1670	
5°	1670	1662	1642	1656	1651	158
15°	1588	1571	1520	1491	1476	447
25°	1441	1393	1293	1231	1209	663
35°	1242	1165	1032	937	903	777
45°	1015	914	756	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°	3	31	85	80	82	11
95°	126	151	155	155	151	141
105°	522	529	534	538	538	551
115°	971	984	980	978	971	960
125°	1412	1433	1426	1419	1416	1261
135°	1826	1853	1858	1855	1848	1411
145°	2217	2234	2248	2250	2241	1385
155°	2535	2542	2550	2562	2554	1167
165°	2757	2755	2755	2772	2760	778
175°	2869	2862	2857	2874	2860	273
180°	2874	2874	2874	2874	2874	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1669.5	1669.5	1669.5	1669.5	1669.5
2.5°	1677.1	1669.5	1652.8	1668.1	1665.0
5°	1669.5	1661.9	1642.2	1655.9	1651.4
7.5°	1655.9	1646.9	1625.8	1631.6	1624.2
10°	1637.8	1627.2	1597.0	1592.4	1583.5
12.5°	1615.2	1601.5	1560.6	1551.7	1535.0
15°	1587.9	1571.2	1519.9	1491.3	1476.2
17.5°	1556.2	1532.0	1468.4	1435.3	1411.1
20°	1519.9	1489.7	1414.1	1376.4	1343.1
22.5°	1480.7	1445.9	1358.2	1306.9	1284.3
25°	1441.4	1393.0	1293.2	1231.4	1208.6
27.5°	1394.6	1343.1	1232.8	1161.9	1127.0
30°	1344.7	1287.2	1166.3	1089.3	1048.5
32.5°	1296.4	1226.8	1103.0	1012.3	974.4
35°	1242.0	1164.9	1032.0	936.8	903.4
37.5°	1189.1	1105.9	965.4	861.1	823.4
40°	1133.2	1042.6	896.0	788.7	749.4
42.5°	1075.7	979.1	826.5	714.6	676.9
45°	1015.3	914.0	755.5	648.1	611.9
47.5°	958.0	850.7	687.5	580.2	546.9
50°	894.4	787.2	621.0	516.6	485.0
52.5°	832.4	719.1	557.5	457.8	429.1
55°	772.0	654.2	491.0	400.4	371.7
57.5°	710.1	589.3	432.1	347.5	323.4
60°	646.6	525.7	370.1	293.2	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	66.6	66.6
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°	2.6	31.2	84.9	79.7	82.3
92.5°	53.7	72.8	75.4	78.0	78.0
95°	126.5	150.8	155.1	155.1	150.8
97.5°	210.6	233.1	242.7	242.7	242.7
100°	307.6	327.6	334.5	334.5	331.9
102.5°	409.9	424.6	434.1	436.8	434.1
105°	521.7	528.6	533.8	538.2	538.2
107.5°	632.6	643.0	643.0	644.7	632.6
110°	740.0	754.0	754.0	754.0	747.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	856.2	870.9	868.3	861.4	856.2
115°	970.6	984.4	980.1	977.5	970.6
117.5°	1084.1	1103.2	1091.1	1084.1	1077.1
120°	1198.5	1217.5	1198.5	1198.5	1190.6
122.5°	1302.4	1326.8	1314.6	1307.7	1302.4
125°	1411.7	1433.3	1426.4	1418.6	1416.0
127.5°	1518.2	1545.1	1535.6	1525.2	1518.2
130°	1617.9	1649.1	1644.8	1639.5	1630.0
132.5°	1729.7	1753.9	1755.7	1743.5	1736.7
135°	1825.8	1852.7	1858.0	1855.3	1848.5
137.5°	1933.3	1955.0	1959.3	1957.6	1947.2
140°	2027.8	2049.4	2061.5	2061.5	2052.0
142.5°	2124.9	2146.5	2153.4	2156.1	2146.5
145°	2216.8	2234.0	2247.9	2250.5	2241.0
147.5°	2299.1	2320.7	2331.1	2335.4	2325.9
150°	2384.0	2398.7	2408.2	2416.0	2408.2
152.5°	2459.3	2474.1	2486.2	2495.8	2486.2
155°	2534.8	2541.6	2549.5	2561.6	2553.8
157.5°	2599.7	2604.9	2609.3	2626.6	2614.4
160°	2657.8	2663.0	2665.6	2680.3	2669.9
162.5°	2711.5	2711.5	2714.1	2730.6	2718.5
165°	2757.4	2754.8	2754.8	2772.2	2760.1
167.5°	2799.0	2791.3	2791.3	2808.5	2796.4
170°	2830.2	2823.3	2820.8	2838.0	2823.3
172.5°	2851.9	2845.0	2842.4	2859.7	2845.0
175°	2869.2	2862.3	2857.1	2874.5	2859.7
177.5°	2878.7	2871.9	2866.6	2881.3	2866.6
180°	2874.5	2874.5	2874.5	2874.5	2874.5

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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	7.16	7.85	8.28	8.96	10.49	3.13	3.82	4.25	4.93	6.46
	3H	8.82	9.43	9.94	10.55	12.10	4.31	4.92	5.43	6.04	7.59
	4H	9.41	10.00	10.55	11.12	12.67	4.75	5.33	5.88	6.45	8.01
	6H	9.82	10.36	10.96	11.48	13.05	5.06	5.60	6.20	6.72	8.28
	8H	9.94	10.45	11.09	11.59	13.15	5.14	5.65	6.29	6.79	8.35
	12H	9.99	10.48	11.14	11.61	13.19	5.18	5.67	6.33	6.79	8.38
4H	2H	7.16	7.74	8.30	8.86	10.41	3.71	4.29	4.85	5.41	6.96
	3H	8.97	9.45	10.11	10.60	12.16	5.04	5.53	6.19	6.67	8.24
	4H	9.65	10.09	10.80	11.23	12.81	5.58	6.03	6.73	7.16	8.74
	6H	10.15	10.53	11.30	11.68	13.26	5.99	6.37	7.14	7.52	9.10
	8H	10.31	10.67	11.47	11.82	13.41	6.11	6.47	7.26	7.61	9.21
	12H	10.40	10.72	11.57	11.88	13.48	6.17	6.49	7.34	7.65	9.25
8H	4H	9.60	9.96	10.76	11.11	12.70	5.84	6.20	7.00	7.35	8.94
	6H	10.15	10.45	11.33	11.64	13.23	6.35	6.65	7.53	7.83	9.42
	8H	10.37	10.62	11.55	11.79	13.40	6.54	6.79	7.72	7.96	9.57
	12H	10.49	10.72	11.68	11.88	13.53	6.65	6.87	7.83	8.04	9.68
12H	4H	9.55	9.87	10.72	11.03	12.63	5.84	6.16	7.01	7.32	8.92
	6H	10.13	10.39	11.31	11.55	13.16	6.40	6.65	7.58	7.82	9.43
	8H	10.34	10.56	11.52	11.73	13.37	6.60	6.82	7.78	7.99	9.63

END OF REPORT