

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: P928550

Luminaire Tested: DFN2DIP-HX4F0-050D090US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928550
REPORT IS A COMBINATION OF REPORTS P900912 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D090US930-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

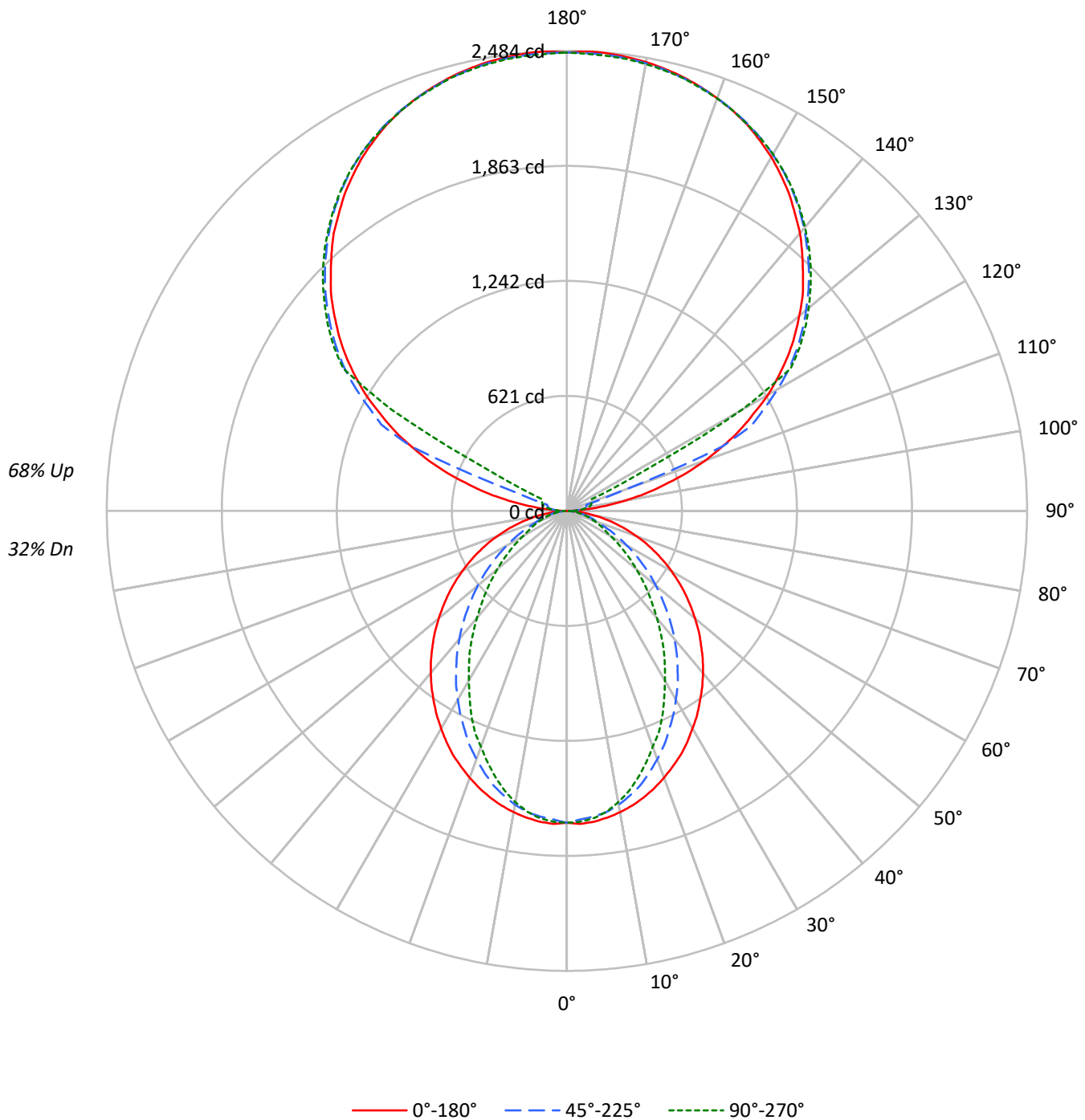
Lumens per Lamp: N/A
Luminaire Lumens: 10725.4 lumens
Efficiency: N/A
Efficacy: 96.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 111.6
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	93	93	93	93	74	74	74	56	56	56	40	40	40
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	79	73	68	77	71	66	62	57	54	51	44	42	40	32	30	29
3	79	70	63	57	71	63	57	52	51	46	43	39	36	34	28	27	25
4	72	62	54	49	65	56	50	45	45	40	37	35	32	29	26	24	22
5	66	55	47	42	59	50	43	38	40	36	32	32	28	26	23	21	19
6	61	49	42	36	55	45	38	33	36	32	28	29	25	22	21	19	17
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	19	17	15
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	16	14
9	49	37	30	25	44	34	27	23	28	23	20	22	18	16	16	14	13
10	45	34	27	22	41	31	25	21	25	21	18	20	17	14	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1252	1252	1252
5°	1254	1233	1240
10°	1242	1208	1200
15°	1225	1169	1138
20°	1203	1114	1061
25°	1179	1052	987
30°	1149	989	894
35°	1118	921	811
40°	1087	851	717
45°	1051	773	631
50°	1014	694	548
55°	976	610	467
60°	931	522	385
65°	879	432	346
70°	817	349	314
75°	738	307	285
80°	625	258	248
85°	437	173	186

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1269 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	157.8	1.5
10°-20°	433.3	4.0
20°-30°	608.4	5.7
30°-40°	663.2	6.2
40°-50°	609.5	5.7
50°-60°	478.7	4.5
60°-70°	311.6	2.9
70°-80°	160.4	1.5
80°-90°	45.3	0.4
90°-100°	81.6	0.8
100°-110°	304.3	2.8
110°-120°	807.0	7.5
120°-130°	1338.5	12.5
130°-140°	1421.8	13.3
140°-150°	1321.4	12.3
150°-160°	1062.4	9.9
160°-170°	684.6	6.4
170°-180°	235.6	2.2
0°-30°	1199.5	11.2
0°-40°	1862.7	17.4
0°-60°	2950.9	27.5
0°-90°	3468.1	32.3
90°-120°	1193.0	11.1
90°-150°	5274.7	49.2
90°-180°	7257.0	67.7
0°-180°	10725.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1684	1684	1684	1684	1684	
5°	1684	1677	1657	1670	1666	160
15°	1602	1585	1533	1504	1489	451
25°	1454	1405	1305	1242	1219	669
35°	1253	1175	1041	945	911	784
45°	1024	922	762	654	617	791
55°	779	660	495	404	375	696
65°	526	402	265	213	209	521
75°	280	174	122	111	110	297
85°	66	34	29	29	29	75
90°	2	22	36	45	48	10
95°	116	57	70	79	77	138
105°	544	598	109	129	136	582
115°	1030	1060	1105	276	147	1014
125°	1456	1480	1514	1526	1532	1299
135°	1802	1831	1847	1865	1861	1392
145°	2090	2088	2119	2132	2123	1307
155°	2302	2286	2307	2318	2304	1061
165°	2425	2415	2420	2432	2420	685
175°	2481	2468	2472	2484	2466	236
180°	2476	2476	2476	2476	2476	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1684.2	1684.2	1684.2	1684.2	1684.2
2.5°	1691.8	1684.2	1667.4	1682.7	1679.6
5°	1684.2	1676.6	1656.7	1670.4	1665.9
7.5°	1670.4	1661.4	1640.0	1646.1	1638.4
10°	1652.2	1641.5	1611.1	1606.4	1597.3
12.5°	1629.3	1615.7	1574.4	1565.4	1548.5
15°	1601.9	1585.1	1533.3	1504.4	1489.2
17.5°	1569.9	1545.5	1481.4	1447.9	1423.5
20°	1533.3	1502.8	1426.6	1388.6	1354.9
22.5°	1493.7	1458.6	1370.2	1318.4	1295.6
25°	1454.0	1405.2	1304.7	1242.2	1219.2
27.5°	1406.9	1354.9	1243.7	1172.1	1137.0
30°	1356.6	1298.5	1176.6	1098.9	1057.7
32.5°	1307.7	1237.6	1112.7	1021.2	983.1
35°	1252.9	1175.1	1041.1	945.0	911.4
37.5°	1199.5	1115.7	974.0	868.7	830.7
40°	1143.1	1051.8	903.8	795.6	756.0
42.5°	1085.3	987.7	833.7	720.9	682.9
45°	1024.3	922.1	762.1	653.8	617.2
47.5°	966.3	858.2	693.6	585.3	551.8
50°	902.4	794.1	626.5	521.2	489.3
52.5°	839.8	725.4	562.4	461.9	432.9
55°	778.8	659.9	495.3	403.9	375.0
57.5°	716.4	594.5	435.9	350.6	326.2
60°	652.3	530.4	373.4	295.8	271.3
62.5°	589.9	468.0	320.1	246.9	234.8
65°	525.8	402.4	265.2	213.4	208.8
67.5°	464.9	341.4	213.4	187.4	182.9
70°	400.9	282.0	176.8	161.5	155.4
72.5°	339.9	227.1	147.8	135.7	132.6
75°	280.4	173.7	121.9	111.2	109.8
77.5°	221.0	123.4	96.1	89.9	86.8
80°	166.1	88.4	73.1	67.1	67.1
82.5°	115.8	59.5	50.3	47.2	47.2
85°	65.5	33.5	28.9	28.9	28.9
87.5°	24.4	12.1	12.1	10.7	10.7
90°	1.7	21.5	35.7	44.9	48.2
92.5°	44.9	37.7	43.0	46.6	48.2
95°	116.4	57.2	69.8	78.9	77.0
97.5°	209.5	62.8	91.3	96.7	98.5
100°	317.1	71.7	102.1	116.4	120.0
102.5°	435.2	431.8	105.7	125.3	130.8
105°	544.5	598.4	109.3	128.9	136.1
107.5°	671.7	716.4	113.0	132.5	139.8
110°	793.6	831.1	313.5	134.4	141.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	908.2	940.3	909.9	137.8	143.4
115°	1029.9	1060.3	1105.2	275.9	146.9
117.5°	1135.6	1171.4	1202.0	945.7	476.4
120°	1253.9	1280.7	1313.0	1334.5	1092.7
122.5°	1354.1	1382.8	1418.8	1429.3	1431.3
125°	1456.2	1479.6	1513.6	1526.2	1531.5
127.5°	1549.3	1574.4	1601.5	1619.3	1621.0
130°	1637.2	1665.9	1685.5	1705.2	1703.6
132.5°	1726.7	1750.1	1769.7	1785.9	1784.2
135°	1802.0	1830.7	1846.7	1864.8	1861.2
137.5°	1880.8	1902.2	1920.3	1938.2	1932.9
140°	1957.7	1972.2	1991.8	2007.9	1999.0
142.5°	2022.4	2035.0	2058.1	2072.4	2063.5
145°	2090.5	2088.5	2119.0	2131.6	2122.6
147.5°	2149.4	2144.1	2174.5	2183.5	2176.4
150°	2206.9	2194.3	2223.0	2233.6	2224.7
152.5°	2255.1	2240.8	2267.7	2278.5	2265.9
155°	2301.7	2285.7	2307.2	2317.9	2303.6
157.5°	2339.4	2325.1	2341.3	2353.8	2339.4
160°	2371.6	2360.8	2371.6	2382.3	2369.8
162.5°	2400.2	2389.5	2398.5	2411.0	2394.9
165°	2425.3	2414.6	2420.0	2432.5	2420.0
167.5°	2445.1	2434.2	2439.7	2452.3	2436.1
170°	2461.2	2450.4	2454.0	2466.5	2450.4
172.5°	2471.9	2461.2	2464.8	2477.4	2461.2
175°	2480.8	2468.2	2471.9	2484.4	2466.5
177.5°	2484.4	2471.9	2473.8	2486.3	2470.2
180°	2475.5	2475.5	2475.5	2475.5	2475.5

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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	6.01	6.71	7.11	7.81	9.31	1.98	2.69	3.08	3.78	5.29
	3H	7.68	8.31	8.79	9.41	10.93	3.16	3.79	4.27	4.89	6.42
	4H	8.28	8.88	9.40	9.98	11.51	3.61	4.21	4.73	5.31	6.84
	6H	8.70	9.25	9.82	10.35	11.89	3.92	4.47	5.05	5.58	7.12
	8H	8.82	9.34	9.95	10.46	12.00	4.01	4.53	5.14	5.66	7.19
	12H	8.88	9.37	10.01	10.49	12.04	4.05	4.55	5.19	5.66	7.22
4H	2H	6.01	6.61	7.14	7.71	9.24	2.56	3.16	3.69	4.26	5.79
	3H	7.83	8.33	8.96	9.46	11.00	3.90	4.40	5.03	5.53	7.07
	4H	8.52	8.98	9.65	10.09	11.65	4.45	4.90	5.58	6.02	7.58
	6H	9.03	9.42	10.17	10.56	12.11	4.86	5.25	6.00	6.39	7.95
	8H	9.20	9.57	10.34	10.70	12.27	4.99	5.35	6.13	6.49	8.05
	12H	9.29	9.62	10.45	10.77	12.34	5.05	5.38	6.21	6.52	8.10
8H	4H	8.48	8.84	9.62	9.98	11.54	4.72	5.08	5.86	6.22	7.78
	6H	9.04	9.34	10.20	10.52	12.08	5.23	5.54	6.40	6.71	8.28
	8H	9.26	9.52	10.42	10.67	12.26	5.43	5.69	6.59	6.84	8.43
	12H	9.39	9.62	10.56	10.77	12.39	5.54	5.77	6.71	6.92	8.54
12H	4H	8.42	8.75	9.58	9.90	11.47	4.72	5.05	5.88	6.19	7.77
	6H	9.02	9.28	10.18	10.43	12.02	5.28	5.55	6.45	6.70	8.29
	8H	9.23	9.46	10.40	10.61	12.23	5.49	5.72	6.66	6.87	8.49

END OF REPORT