

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: P924501

Luminaire Tested: DFN2DIP-HX3F0-090D060US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924501
REPORT IS A COMBINATION OF REPORTS P900776 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-090D060US950-RLLONL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

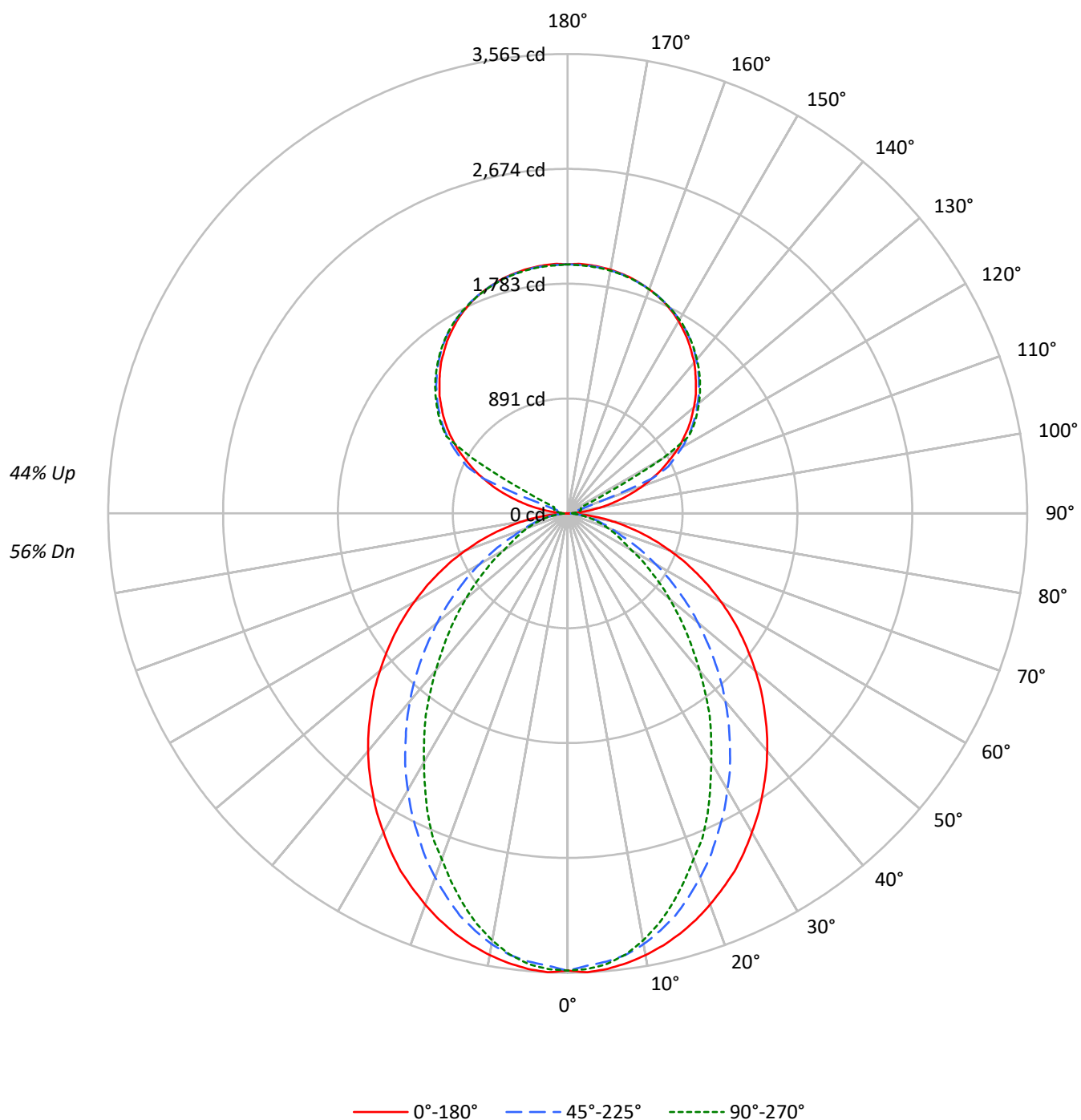
Lumens per Lamp: N/A
Luminaire Lumens: 12964.9 lumens
Efficiency: N/A
Efficacy: 93.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 138
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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	56	54	53
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	50	48	46
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	31
6	65	54	46	40	61	50	43	38	44	39	34	39	34	31	33	30	27
7	61	49	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4111	4111	4111
5°	4115	4042	4069
10°	4073	3960	3934
15°	4015	3827	3728
20°	3939	3644	3475
25°	3861	3439	3230
30°	3757	3229	2921
35°	3655	3004	2650
40°	3551	2771	2339
45°	3431	2514	2058
50°	3306	2254	1783
55°	3175	1976	1519
60°	3024	1687	1248
65°	2850	1393	1121
70°	2639	1118	1011
75°	2374	980	915
80°	1990	813	786
85°	1359	529	578

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3431 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.6	2.6
10°-20°	913.0	7.0
20°-30°	1281.8	9.9
30°-40°	1397.3	10.8
40°-50°	1284.2	9.9
50°-60°	1008.6	7.8
60°-70°	656.5	5.1
70°-80°	337.9	2.6
80°-90°	89.7	0.7
90°-100°	63.7	0.5
100°-110°	237.5	1.8
110°-120°	629.8	4.9
120°-130°	1044.5	8.1
130°-140°	1109.5	8.6
140°-150°	1031.2	8.0
150°-160°	829.1	6.4
160°-170°	534.2	4.1
170°-180°	183.9	1.4
0°-30°	2527.4	19.5
0°-40°	3924.6	30.3
0°-60°	6217.4	48.0
0°-90°	7301.5	56.3
90°-120°	930.9	7.2
90°-150°	4116.2	31.7
90°-180°	5663.0	43.7
0°-180°	12964.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3549	3549	3549	3549	3549	
5°	3549	3533	3491	3520	3510	336
15°	3375	3340	3231	3170	3138	951
25°	3064	2961	2749	2617	2569	1409
35°	2640	2476	2194	1991	1920	1652
45°	2158	1943	1606	1378	1300	1667
55°	1641	1390	1044	851	790	1466
65°	1108	848	559	450	440	1099
75°	591	366	257	234	231	625
85°	138	70	61	61	61	158
90°	1	17	28	35	38	12
95°	91	45	54	62	60	108
105°	425	467	85	101	106	454
115°	804	828	862	215	115	791
125°	1136	1155	1181	1191	1195	1014
135°	1406	1429	1441	1455	1452	1086
145°	1631	1630	1654	1663	1656	1020
155°	1796	1784	1800	1809	1798	828
165°	1893	1884	1888	1898	1888	535
175°	1936	1926	1929	1939	1925	184
180°	1932	1932	1932	1932	1932	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3548.6	3548.6	3548.6	3548.6	3548.6
2.5°	3564.6	3548.6	3513.1	3545.5	3539.1
5°	3548.6	3532.6	3490.7	3519.6	3510.1
7.5°	3519.6	3500.5	3455.6	3468.2	3452.1
10°	3481.1	3458.6	3394.6	3384.7	3365.6
12.5°	3433.1	3404.2	3317.2	3298.2	3262.7
15°	3375.2	3339.8	3230.7	3169.7	3137.7
17.5°	3307.7	3256.3	3121.3	3050.8	2999.4
20°	3230.7	3166.3	3005.8	2925.7	2854.8
22.5°	3147.2	3073.3	2886.9	2777.9	2729.9
25°	3063.8	2960.8	2749.0	2617.4	2569.0
27.5°	2964.3	2854.8	2620.4	2469.5	2395.6
30°	2858.3	2736.0	2479.1	2315.5	2228.6
32.5°	2755.3	2607.5	2344.5	2151.7	2071.2
35°	2639.9	2476.0	2193.5	1991.2	1920.3
37.5°	2527.4	2350.7	2052.1	1830.3	1750.3
40°	2408.6	2216.0	1904.3	1676.4	1592.9
42.5°	2286.5	2081.2	1756.7	1519.0	1438.8
45°	2158.1	1942.8	1605.8	1377.5	1300.5
47.5°	2036.1	1808.2	1461.3	1233.0	1162.5
50°	1901.2	1673.2	1320.0	1098.1	1031.0
52.5°	1769.4	1528.5	1185.1	973.1	912.1
55°	1640.9	1390.5	1043.6	851.2	790.1
57.5°	1509.4	1252.5	918.6	738.7	687.3
60°	1374.4	1117.5	786.8	623.2	571.7
62.5°	1243.0	986.1	674.3	520.3	494.7
65°	1108.0	847.7	558.8	449.7	439.9
67.5°	979.6	719.2	449.7	394.9	385.3
70°	844.7	594.2	372.4	340.4	327.4
72.5°	716.2	478.3	311.4	285.8	279.4
75°	590.8	366.0	256.9	234.4	231.3
77.5°	465.7	260.0	202.3	189.5	183.0
80°	349.9	186.4	154.0	141.4	141.4
82.5°	243.9	125.4	106.0	99.5	99.5
85°	137.9	70.5	61.0	61.0	61.0
87.5°	51.4	25.6	25.6	22.5	22.5
90°	1.3	16.8	27.9	35.0	37.7
92.5°	35.0	29.4	33.5	36.3	37.7
95°	90.8	44.6	54.5	61.6	60.1
97.5°	163.5	48.9	71.2	75.6	76.9
100°	247.5	55.9	79.7	90.8	93.6
102.5°	339.6	337.0	82.5	97.8	102.1
105°	424.9	466.9	85.3	100.6	106.3
107.5°	524.2	559.0	88.1	103.4	109.0
110°	619.3	648.5	244.7	104.9	110.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	708.7	733.8	710.1	107.5	111.9
115°	803.7	827.5	862.5	215.3	114.7
117.5°	886.2	914.1	938.0	738.0	371.8
120°	978.5	999.4	1024.7	1041.4	852.7
122.5°	1056.7	1079.1	1107.1	1115.4	1116.9
125°	1136.4	1154.6	1181.1	1191.0	1195.1
127.5°	1209.1	1228.7	1249.7	1263.7	1265.0
130°	1277.6	1300.0	1315.3	1330.7	1329.4
132.5°	1347.5	1365.7	1381.0	1393.6	1392.3
135°	1406.3	1428.7	1441.1	1455.2	1452.4
137.5°	1467.6	1484.4	1498.5	1512.5	1508.4
140°	1527.7	1539.1	1554.4	1566.9	1560.0
142.5°	1578.2	1588.0	1606.2	1617.2	1610.3
145°	1631.3	1629.8	1653.6	1663.4	1656.4
147.5°	1677.3	1673.1	1696.9	1703.8	1698.4
150°	1722.2	1712.3	1734.8	1743.1	1736.1
152.5°	1759.8	1748.7	1769.6	1778.1	1768.2
155°	1796.2	1783.7	1800.5	1808.8	1797.6
157.5°	1825.6	1814.4	1827.0	1836.8	1825.6
160°	1850.8	1842.3	1850.8	1859.1	1849.3
162.5°	1873.0	1864.7	1871.7	1881.5	1868.9
165°	1892.6	1884.3	1888.4	1898.3	1888.4
167.5°	1908.0	1899.6	1903.9	1913.7	1901.0
170°	1920.7	1912.2	1915.1	1924.8	1912.2
172.5°	1929.0	1920.7	1923.5	1933.3	1920.7
175°	1936.0	1926.1	1929.0	1938.7	1924.8
177.5°	1938.7	1929.0	1930.4	1940.2	1927.7
180°	1931.8	1931.8	1931.8	1931.8	1931.8

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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	12.59	13.47	13.49	14.39	15.57	8.56	9.45	9.47	10.37	11.55
	3H	14.26	15.05	15.18	15.98	17.19	9.75	10.54	10.67	11.47	12.68
	4H	14.87	15.61	15.80	16.55	17.76	10.20	10.95	11.14	11.88	13.10
	6H	15.28	15.97	16.23	16.91	18.14	10.52	11.21	11.47	12.15	13.38
	8H	15.41	16.06	16.36	17.02	18.25	10.61	11.26	11.56	12.22	13.45
	12H	15.47	16.09	16.43	17.04	18.29	10.65	11.28	11.61	12.23	13.48
4H	2H	12.61	13.36	13.55	14.29	15.51	9.16	9.91	10.10	10.84	12.06
	3H	14.43	15.06	15.39	16.02	17.25	10.51	11.13	11.46	12.10	13.33
	4H	15.12	15.69	16.08	16.65	17.90	11.06	11.62	12.02	12.58	13.84
	6H	15.63	16.12	16.61	17.11	18.36	11.47	11.96	12.45	12.94	14.20
	8H	15.81	16.26	16.78	17.24	18.51	11.60	12.05	12.57	13.03	14.30
	12H	15.90	16.31	16.89	17.30	18.58	11.67	12.07	12.66	13.07	14.34
8H	4H	15.09	15.55	16.07	16.53	17.79	11.34	11.79	12.31	12.77	14.04
	6H	15.65	16.03	16.65	17.05	18.31	11.85	12.22	12.85	13.24	14.51
	8H	15.86	16.20	16.87	17.20	18.49	12.04	12.37	13.04	13.38	14.66
	12H	16.00	16.29	17.01	17.29	18.62	12.15	12.45	13.17	13.45	14.78
12H	4H	15.05	15.46	16.04	16.45	17.73	11.34	11.75	12.33	12.75	14.02
	6H	15.63	15.96	16.64	16.97	18.25	11.90	12.23	12.90	13.24	14.52
	8H	15.85	16.14	16.86	17.14	18.47	12.11	12.40	13.12	13.40	14.73