

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: P916884

Luminaire Tested: DFN2DIP-PN4F0-060D110US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916884
REPORT IS A COMBINATION OF REPORTS P899739 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-060D110US930-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

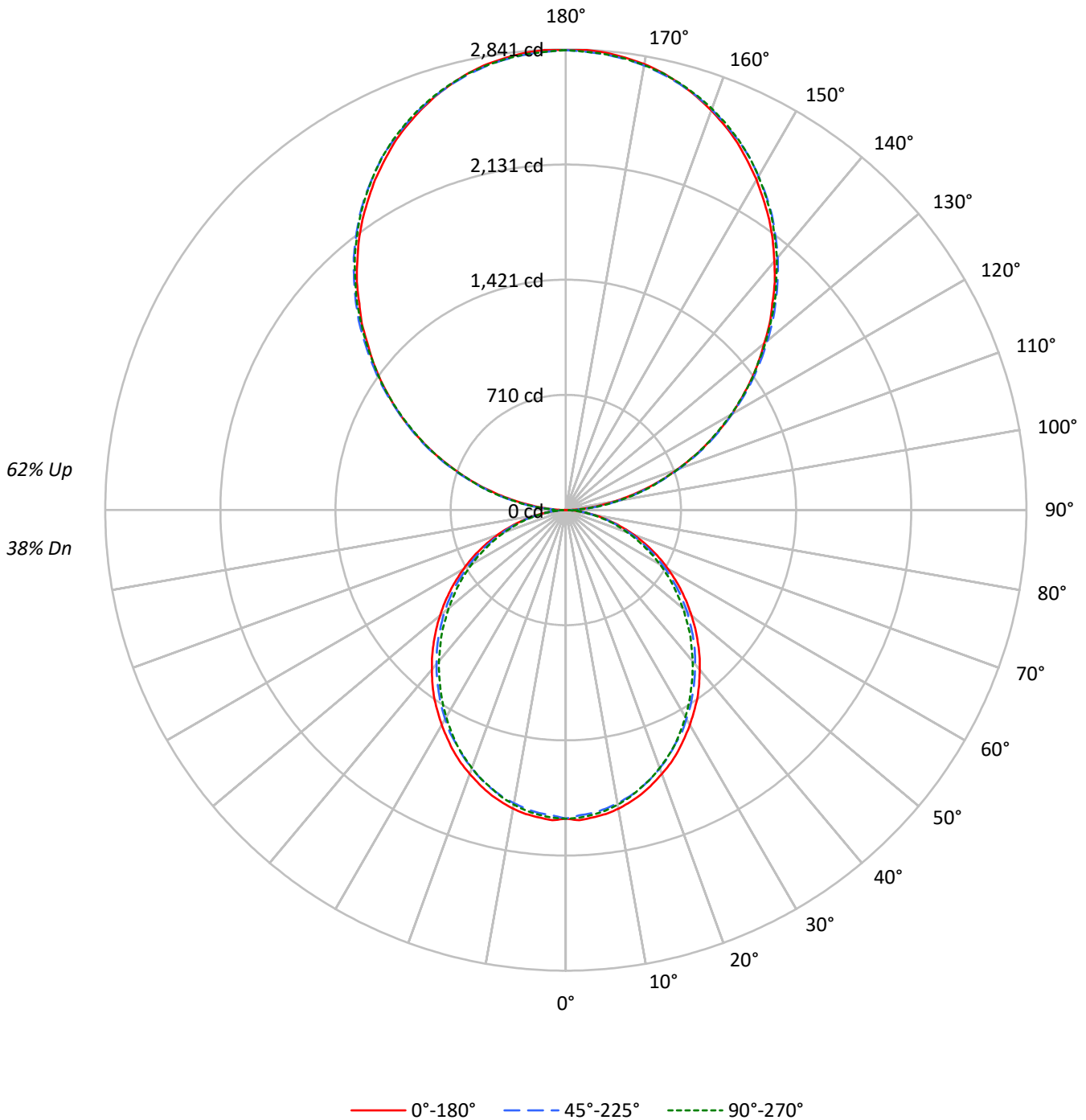
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12779.8 lumens
Efficiency: N/A
Efficacy: 87.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 146.2
Input Voltage (V):
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	104	104	104	104	95	95	95	95	77	77	77	60	60	60	45	45	45	38			38
1	95	91	87	84	86	83	79	76	67	65	63	53	51	50	40	39	38	32			32
2	87	79	73	68	78	72	67	63	59	55	52	46	44	42	35	33	32	27			27
3	79	70	62	57	71	63	57	52	52	47	44	41	38	35	31	29	27	23			23
4	72	62	54	48	65	56	49	44	46	41	37	37	33	30	28	25	23	19			19
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	25	22	20	17			17
6	61	49	41	35	55	45	38	33	37	32	28	30	26	23	23	20	18	15			15
7	56	44	36	31	51	41	34	29	33	28	24	27	23	20	21	18	16	13			13
8	52	40	32	27	47	37	30	25	30	25	22	25	21	18	19	16	14	12			12
9	48	37	29	24	44	34	27	23	28	23	19	23	19	16	17	15	13	11			11
10	45	33	26	22	41	31	24	20	26	21	17	21	17	14	16	14	12	10			10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1389	1389	1389
5°	1392	1370	1380
10°	1380	1352	1361
15°	1360	1330	1332
20°	1333	1299	1303
25°	1305	1262	1268
30°	1271	1228	1225
35°	1239	1188	1178
40°	1199	1147	1134
45°	1159	1106	1089
50°	1116	1063	1037
55°	1070	1014	990
60°	1019	955	935
65°	962	894	870
70°	891	819	801
75°	792	730	737
80°	673	617	615
85°	486	421	411

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2220 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.1	1.4
10°-20°	504.1	3.9
20°-30°	740.8	5.8
30°-40°	860.4	6.7
40°-50°	859.3	6.7
50°-60°	749.3	5.9
60°-70°	553.9	4.3
70°-80°	313.4	2.5
80°-90°	90.8	0.7
90°-100°	175.5	1.4
100°-110°	557.7	4.4
110°-120°	954.3	7.5
120°-130°	1255.1	9.8
130°-140°	1408.8	11.0
140°-150°	1381.5	10.8
150°-160°	1158.9	9.1
160°-170°	768.5	6.0
170°-180°	268.6	2.1
0°-30°	1424.0	11.1
0°-40°	2284.3	17.9
0°-60°	3892.9	30.5
0°-90°	4850.9	38.0
90°-120°	1687.5	13.2
90°-150°	5732.8	44.9
90°-180°	7929.0	62.0
0°-180°	12779.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1903	1903	1903	1903	1903	
5°	1903	1896	1876	1891	1887	181
15°	1812	1801	1777	1785	1776	510
25°	1640	1625	1594	1598	1594	755
35°	1415	1397	1367	1356	1347	884
45°	1151	1138	1111	1091	1084	889
55°	871	860	838	816	807	779
65°	588	577	558	542	533	581
75°	307	304	295	284	287	328
85°	75	73	71	66	64	84
90°	2	31	84	79	81	12
95°	125	149	153	153	149	139
105°	515	522	527	531	531	543
115°	958	971	967	965	958	947
125°	1393	1414	1407	1400	1397	1245
135°	1802	1828	1833	1831	1824	1393
145°	2187	2204	2218	2221	2211	1367
155°	2501	2508	2516	2528	2520	1151
165°	2721	2718	2718	2735	2723	768
175°	2831	2824	2819	2836	2822	269
180°	2836	2836	2836	2836	2836	



TEST NUMBER: P916884

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1903.4	1903.4	1903.4	1903.4	1903.4
2.5°	1914.5	1905.4	1885.1	1903.4	1899.9
5°	1903.4	1896.2	1876.0	1890.6	1887.1
7.5°	1890.6	1879.8	1859.5	1874.3	1870.6
10°	1870.6	1857.8	1835.8	1850.4	1844.9
12.5°	1843.1	1832.1	1810.2	1819.3	1815.7
15°	1811.9	1801.1	1777.2	1784.6	1775.5
17.5°	1773.5	1762.7	1738.8	1747.8	1738.8
20°	1731.4	1720.5	1694.8	1700.3	1693.1
22.5°	1689.5	1672.9	1649.0	1649.0	1645.4
25°	1639.9	1625.4	1594.2	1597.7	1594.2
27.5°	1584.9	1572.1	1548.4	1543.0	1533.9
30°	1530.2	1515.4	1488.1	1482.6	1475.2
32.5°	1471.5	1460.7	1431.3	1420.2	1412.9
35°	1414.9	1396.6	1367.3	1356.2	1347.0
37.5°	1350.8	1334.2	1305.0	1292.1	1283.0
40°	1284.9	1270.2	1240.9	1224.6	1217.2
42.5°	1220.8	1206.1	1177.0	1158.5	1147.6
45°	1151.4	1138.5	1110.9	1091.0	1083.5
47.5°	1083.5	1070.7	1041.5	1021.2	1010.3
50°	1012.1	1003.0	977.4	951.7	942.6
52.5°	942.6	929.8	906.0	885.9	873.1
55°	871.3	860.2	838.3	816.4	807.2
57.5°	799.9	790.8	766.9	744.9	737.5
60°	728.4	721.2	695.6	675.4	669.9
62.5°	658.8	646.0	627.8	609.5	602.2
65°	587.6	576.6	558.3	541.8	532.6
67.5°	514.4	505.1	488.8	476.0	468.6
70°	446.6	439.3	422.7	409.9	402.8
72.5°	377.1	369.7	360.6	347.8	342.3
75°	307.4	303.9	294.6	283.7	287.4
77.5°	245.2	237.9	234.2	228.8	223.3
80°	183.1	181.2	177.5	172.0	168.4
82.5°	124.5	124.5	122.7	115.4	115.4
85°	74.9	73.2	71.4	65.8	64.1
87.5°	33.0	29.4	25.6	20.2	18.3
90°	2.5	30.8	83.8	78.7	81.2
92.5°	53.0	71.8	74.4	77.0	77.0
95°	124.8	148.8	153.0	153.0	148.8
97.5°	207.8	230.0	239.5	239.5	239.5
100°	303.5	323.2	330.0	330.0	327.5
102.5°	404.5	419.0	428.4	431.0	428.4
105°	514.8	521.6	526.8	531.0	531.0
107.5°	624.2	634.5	634.5	636.2	624.2
110°	730.3	744.0	744.0	744.0	737.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	844.8	859.3	856.8	849.9	844.8
115°	957.7	971.3	967.1	964.6	957.7
117.5°	1069.8	1088.5	1076.5	1069.8	1062.9
120°	1182.6	1201.4	1182.6	1182.6	1174.9
122.5°	1285.2	1309.1	1297.1	1290.3	1285.2
125°	1392.9	1414.3	1407.4	1399.8	1397.2
127.5°	1498.1	1524.6	1515.2	1505.0	1498.1
130°	1596.4	1627.3	1622.9	1617.8	1608.4
132.5°	1706.7	1730.7	1732.4	1720.4	1713.6
135°	1801.6	1828.1	1833.3	1830.8	1823.9
137.5°	1907.7	1929.1	1933.3	1931.6	1921.4
140°	2000.9	2022.3	2034.3	2034.3	2024.9
142.5°	2096.7	2118.1	2124.9	2127.4	2118.1
145°	2187.3	2204.4	2218.1	2220.6	2211.3
147.5°	2268.6	2289.9	2300.2	2304.4	2295.1
150°	2352.4	2366.9	2376.3	2384.0	2376.3
152.5°	2426.7	2441.2	2453.2	2462.7	2453.2
155°	2501.2	2507.9	2515.7	2527.7	2519.9
157.5°	2565.3	2570.4	2574.6	2591.8	2579.8
160°	2622.6	2627.7	2630.2	2644.8	2634.6
162.5°	2675.6	2675.6	2678.2	2694.4	2682.4
165°	2720.9	2718.3	2718.3	2735.4	2723.4
167.5°	2761.9	2754.2	2754.2	2771.4	2759.4
170°	2792.7	2785.9	2783.3	2800.4	2785.9
172.5°	2814.1	2807.2	2804.7	2821.8	2807.2
175°	2831.2	2824.4	2819.2	2836.3	2821.8
177.5°	2840.6	2833.7	2828.6	2843.2	2828.6
180°	2836.3	2836.3	2836.3	2836.3	2836.3



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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	7.19	7.95	8.25	9.01	10.45	6.75	7.51	7.81	8.57	10.01
	3H	8.85	9.53	9.91	10.60	12.05	8.36	9.05	9.43	10.11	11.56
	4H	9.43	10.08	10.51	11.15	12.61	8.94	9.59	10.02	10.66	12.12
	6H	9.83	10.43	10.91	11.50	12.97	9.34	9.93	10.42	11.01	12.48
	8H	9.93	10.50	11.02	11.59	13.05	9.44	10.01	10.53	11.10	12.56
	12H	9.98	10.52	11.07	11.60	13.09	9.48	10.02	10.57	11.10	12.59
4H	2H	7.64	8.29	8.72	9.36	10.82	7.29	7.94	8.37	9.01	10.47
	3H	9.50	10.04	10.59	11.14	12.61	9.10	9.64	10.19	10.74	12.21
	4H	10.21	10.71	11.31	11.80	13.29	9.80	10.29	10.89	11.38	12.87
	6H	10.73	11.15	11.83	12.26	13.75	10.30	10.73	11.40	11.84	13.32
	8H	10.87	11.27	11.98	12.37	13.88	10.45	10.84	11.55	11.95	13.45
	12H	10.94	11.30	12.06	12.42	13.93	10.50	10.86	11.62	11.98	13.49
8H	4H	10.40	10.80	11.50	11.90	13.40	10.03	10.43	11.13	11.53	13.03
	6H	11.03	11.36	12.16	12.51	14.00	10.66	10.99	11.78	12.13	13.63
	8H	11.25	11.54	12.39	12.67	14.19	10.87	11.16	12.00	12.28	13.80
	12H	11.38	11.64	12.52	12.76	14.31	10.98	11.23	12.12	12.36	13.91
12H	4H	10.38	10.74	11.50	11.86	13.36	10.02	10.38	11.14	11.50	13.00
	6H	11.06	11.35	12.19	12.47	13.99	10.70	10.99	11.83	12.11	13.63
	8H	11.30	11.55	12.44	12.68	14.23	10.93	11.18	12.06	12.30	13.86