

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: P908608

Luminaire Tested: DFN2DIP-PN4F0-040D060US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908608
REPORT IS A COMBINATION OF REPORTS P899645 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-040D060US840-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

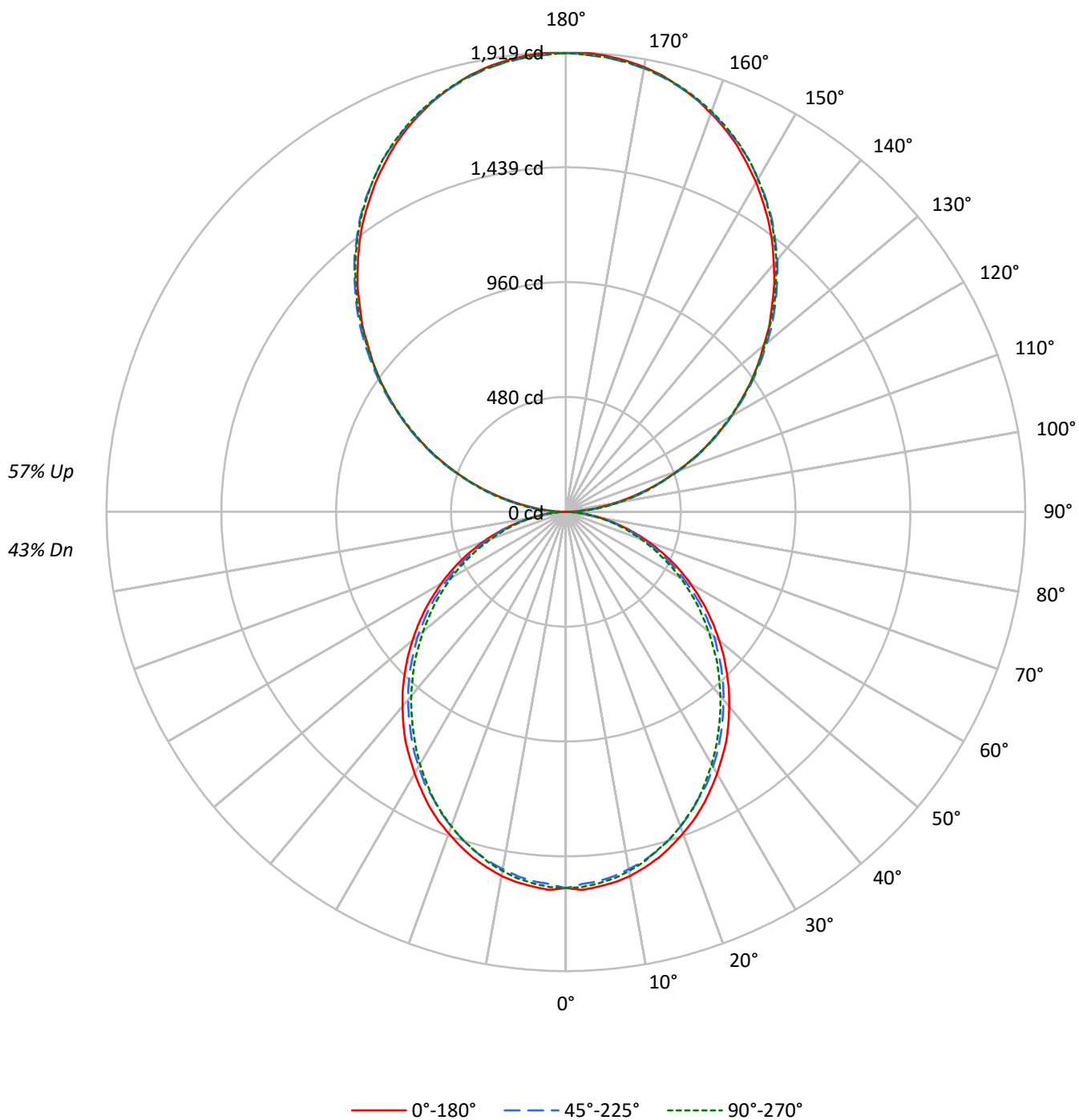
Lumens per Lamp: N/A
Luminaire Lumens: 9361.4 lumens
Efficiency: N/A
Efficacy: 119.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 78.5
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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	49	49	49
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	44	43	42
2	88	80	74	69	80	73	68	64	61	57	54	49	47	44	38	37	35
3	80	70	63	57	73	65	58	53	54	49	45	44	40	37	34	32	30
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	30	28	26
5	67	56	47	42	61	51	44	39	43	37	33	35	31	28	27	25	22
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	31	52	41	34	29	35	29	25	29	24	21	23	20	18
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1147	1147	1147
5°	1149	1131	1139
10°	1140	1116	1124
15°	1123	1098	1100
20°	1100	1073	1076
25°	1078	1042	1047
30°	1050	1014	1011
35°	1023	981	973
40°	990	947	937
45°	957	913	900
50°	921	878	857
55°	884	837	817
60°	841	788	772
65°	795	738	719
70°	736	677	661
75°	654	603	609
80°	556	509	508
85°	402	348	339

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1498 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.9	1.6
10°-20°	416.2	4.4
20°-30°	611.7	6.5
30°-40°	710.5	7.6
40°-50°	709.6	7.6
50°-60°	618.7	6.6
60°-70°	457.4	4.9
70°-80°	258.8	2.8
80°-90°	73.7	0.8
90°-100°	118.6	1.3
100°-110°	376.8	4.0
110°-120°	644.8	6.9
120°-130°	848.0	9.1
130°-140°	951.8	10.2
140°-150°	933.4	10.0
150°-160°	783.0	8.4
160°-170°	519.2	5.5
170°-180°	181.5	1.9
0°-30°	1175.9	12.6
0°-40°	1886.3	20.1
0°-60°	3214.6	34.3
0°-90°	4004.5	42.8
90°-120°	1140.1	12.2
90°-150°	3873.3	41.4
90°-180°	5357.0	57.2
0°-180°	9361.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1572	1572	1572	1572	1572	
5°	1572	1566	1549	1561	1558	149
15°	1496	1487	1468	1474	1466	421
25°	1354	1342	1316	1319	1316	623
35°	1168	1153	1129	1120	1112	730
45°	951	940	917	901	895	734
55°	720	710	692	674	667	643
65°	485	476	461	447	440	480
75°	254	251	243	234	237	271
85°	62	60	59	54	53	69
90°	2	21	57	53	55	9
95°	84	100	103	103	100	94
105°	348	352	356	359	359	367
115°	647	656	653	652	647	640
125°	941	956	951	946	944	841
135°	1217	1235	1239	1237	1232	941
145°	1478	1489	1499	1500	1494	923
155°	1690	1694	1700	1708	1702	778
165°	1838	1836	1836	1848	1840	519
175°	1913	1908	1905	1916	1906	182
180°	1916	1916	1916	1916	1916	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1571.8	1571.8	1571.8	1571.8	1571.8
2.5°	1580.9	1573.4	1556.7	1571.8	1568.9
5°	1571.8	1565.8	1549.1	1561.2	1558.3
7.5°	1561.2	1552.2	1535.5	1547.7	1544.7
10°	1544.7	1534.1	1516.0	1528.0	1523.5
12.5°	1521.9	1512.9	1494.8	1502.4	1499.2
15°	1496.2	1487.2	1467.5	1473.6	1466.1
17.5°	1464.5	1455.5	1435.8	1443.3	1435.8
20°	1429.7	1420.7	1399.6	1404.0	1398.2
22.5°	1395.0	1381.4	1361.7	1361.7	1358.7
25°	1354.1	1342.1	1316.5	1319.4	1316.5
27.5°	1308.8	1298.2	1278.7	1274.1	1266.7
30°	1263.5	1251.4	1228.8	1224.3	1218.2
32.5°	1215.2	1206.2	1181.9	1172.9	1166.7
35°	1168.3	1153.3	1129.0	1119.9	1112.4
37.5°	1115.4	1101.8	1077.5	1067.0	1059.4
40°	1061.1	1048.8	1024.6	1011.2	1005.1
42.5°	1008.1	995.9	971.9	956.6	947.7
45°	950.7	940.2	917.4	900.9	894.7
47.5°	894.7	884.1	860.0	843.3	834.4
50°	835.8	828.2	807.1	785.9	778.3
52.5°	778.3	767.8	748.2	731.5	720.9
55°	719.5	710.3	692.3	674.1	666.6
57.5°	660.5	653.0	633.2	615.1	609.0
60°	601.5	595.5	574.4	557.7	553.2
62.5°	544.1	533.5	518.5	503.3	497.3
65°	485.2	476.1	461.0	447.4	439.9
67.5°	424.7	417.1	403.6	393.0	387.0
70°	368.8	362.7	349.1	338.5	332.5
72.5°	311.4	305.3	297.8	287.2	282.7
75°	253.9	251.0	243.3	234.3	237.3
77.5°	202.5	196.4	193.4	188.8	184.4
80°	151.2	149.6	146.5	142.1	139.1
82.5°	102.8	102.8	101.4	95.2	95.2
85°	61.9	60.5	59.0	54.3	52.9
87.5°	27.3	24.2	21.2	16.7	15.0
90°	1.7	20.8	56.7	53.1	54.8
92.5°	35.9	48.6	50.3	52.0	52.0
95°	84.3	100.5	103.4	103.4	100.5
97.5°	140.4	155.4	161.8	161.8	161.8
100°	205.1	218.3	223.0	223.0	221.3
102.5°	273.3	283.1	289.4	291.1	289.4
105°	347.8	352.4	355.9	358.8	358.8
107.5°	421.7	428.7	428.7	429.8	421.7
110°	493.4	502.6	502.6	502.6	498.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	570.8	580.6	578.9	574.2	570.8
115°	647.0	656.3	653.4	651.7	647.0
117.5°	722.8	735.5	727.3	722.8	718.1
120°	799.0	811.7	799.0	799.0	793.8
122.5°	868.3	884.4	876.4	871.8	868.3
125°	941.1	955.5	950.9	945.7	944.0
127.5°	1012.2	1030.1	1023.7	1016.8	1012.2
130°	1078.6	1099.4	1096.5	1093.1	1086.7
132.5°	1153.2	1169.3	1170.4	1162.4	1157.7
135°	1217.3	1235.2	1238.6	1236.9	1232.2
137.5°	1288.9	1303.3	1306.3	1305.0	1298.2
140°	1351.9	1366.3	1374.4	1374.4	1368.1
142.5°	1416.5	1431.0	1435.6	1437.3	1431.0
145°	1477.8	1489.3	1498.6	1500.4	1494.0
147.5°	1532.7	1547.1	1554.1	1556.9	1550.5
150°	1589.3	1599.1	1605.5	1610.6	1605.5
152.5°	1639.5	1649.4	1657.5	1663.9	1657.5
155°	1689.8	1694.5	1699.6	1707.8	1702.5
157.5°	1733.1	1736.7	1739.5	1751.1	1743.0
160°	1771.9	1775.3	1777.1	1786.9	1780.0
162.5°	1807.7	1807.7	1809.4	1820.4	1812.3
165°	1838.3	1836.5	1836.5	1848.2	1840.1
167.5°	1866.0	1860.9	1860.9	1872.4	1864.3
170°	1886.8	1882.2	1880.5	1892.0	1882.2
172.5°	1901.3	1896.6	1894.9	1906.4	1896.6
175°	1912.8	1908.2	1904.7	1916.3	1906.4
177.5°	1919.1	1914.6	1911.1	1920.9	1911.1
180°	1916.3	1916.3	1916.3	1916.3	1916.3

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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	7.05	7.85	8.06	8.87	10.24	6.61	7.41	7.62	8.43	9.80
	3H	8.71	9.42	9.73	10.46	11.85	8.22	8.94	9.25	9.97	11.36
	4H	9.29	9.97	10.33	11.01	12.41	8.81	9.49	9.84	10.52	11.92
	6H	9.69	10.32	10.74	11.36	12.77	9.20	9.83	10.25	10.87	12.28
	8H	9.80	10.39	10.85	11.45	12.86	9.30	9.90	10.36	10.96	12.36
	12H	9.84	10.41	10.90	11.46	12.89	9.34	9.91	10.40	10.96	12.39
4H	2H	7.50	8.18	8.55	9.22	10.62	7.15	7.83	8.20	8.87	10.27
	3H	9.37	9.93	10.42	11.00	12.41	8.96	9.53	10.02	10.59	12.01
	4H	10.08	10.60	11.14	11.66	13.09	9.66	10.18	10.72	11.24	12.67
	6H	10.59	11.04	11.66	12.12	13.55	10.17	10.62	11.24	11.70	13.12
	8H	10.74	11.16	11.81	12.23	13.68	10.31	10.73	11.38	11.80	13.25
	12H	10.82	11.19	11.90	12.28	13.73	10.37	10.75	11.46	11.84	13.29
8H	4H	10.27	10.69	11.34	11.76	13.20	9.90	10.32	10.97	11.39	12.83
	6H	10.90	11.25	12.00	12.36	13.80	10.53	10.87	11.62	11.99	13.43
	8H	11.13	11.43	12.23	12.52	13.99	10.74	11.04	11.84	12.14	13.60
	12H	11.26	11.52	12.36	12.61	14.11	10.85	11.12	11.96	12.21	13.71
12H	4H	10.25	10.63	11.34	11.72	13.17	9.89	10.27	10.98	11.35	12.80
	6H	10.93	11.24	12.03	12.33	13.79	10.57	10.87	11.67	11.97	13.43
	8H	11.17	11.44	12.28	12.53	14.03	10.80	11.07	11.91	12.16	13.66