

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: P922332

Luminaire Tested: DFN2DIP-PN4F0-060D090US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922332
REPORT IS A COMBINATION OF REPORTS P899703 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-060D090US940-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

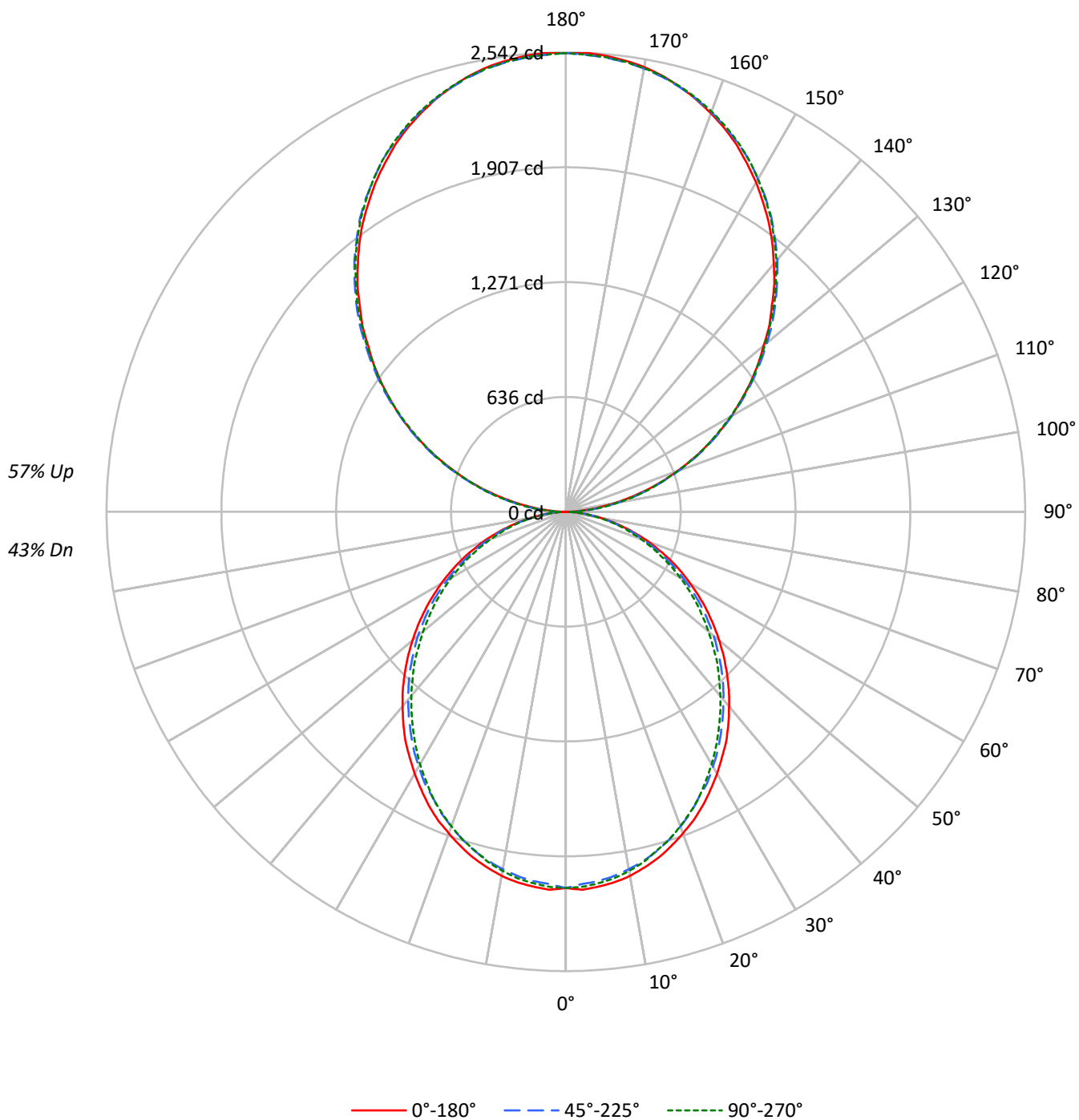
Lumens per Lamp: N/A
Luminaire Lumens: 12399.3 lumens
Efficiency: N/A
Efficacy: 102.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 121.2
Input Voltage (V):
Input Current (Ain): 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

TEST NUMBER: P922332

CATALOG NUMBER: DFN2DIP-PN4F0-060D090US940-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P922332

CATALOG NUMBER: DFN2DIP-PN4F0-060D090US940-FLLFL

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°	1520	1520	1520
5°	1522	1499	1509
10°	1510	1479	1489
15°	1487	1455	1457
20°	1457	1421	1425
25°	1428	1381	1387
30°	1390	1343	1339
35°	1355	1299	1289
40°	1311	1254	1241
45°	1268	1210	1192
50°	1220	1163	1135
55°	1170	1109	1082
60°	1114	1044	1022
65°	1053	977	952
70°	975	896	876
75°	866	799	806
80°	736	675	672
85°	532	460	450

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1987 cd/sqm

TEST NUMBER: P922332

CATALOG NUMBER: DFN2DIP-PN4F0-060D090US940-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	195.9	1.6
10°-20°	551.3	4.4
20°-30°	810.2	6.5
30°-40°	941.0	7.6
40°-50°	939.8	7.6
50°-60°	819.5	6.6
60°-70°	605.8	4.9
70°-80°	342.7	2.8
80°-90°	97.7	0.8
90°-100°	157.1	1.3
100°-110°	499.0	4.0
110°-120°	854.0	6.9
120°-130°	1123.1	9.1
130°-140°	1260.7	10.2
140°-150°	1236.2	10.0
150°-160°	1037.0	8.4
160°-170°	687.7	5.5
170°-180°	240.4	1.9
0°-30°	1557.4	12.6
0°-40°	2498.4	20.1
0°-60°	4257.8	34.3
0°-90°	5304.0	42.8
90°-120°	1510.1	12.2
90°-150°	5130.1	41.4
90°-180°	7095.0	57.2
0°-180°	12399.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2082	2082	2082	2082	2082	
5°	2082	2074	2052	2068	2064	198
15°	1982	1970	1944	1952	1942	558
25°	1794	1778	1744	1748	1744	825
35°	1548	1528	1495	1483	1473	966
45°	1259	1245	1215	1193	1185	972
55°	953	941	917	893	883	852
65°	643	631	611	592	583	635
75°	336	332	322	310	314	359
85°	82	80	78	72	70	91
90°	2	28	75	70	73	12
95°	112	133	137	137	133	124
105°	461	467	471	475	475	486
115°	857	869	865	863	857	848
125°	1246	1266	1260	1253	1250	1114
135°	1612	1636	1641	1638	1632	1246
145°	1957	1973	1985	1987	1979	1223
155°	2238	2244	2251	2262	2255	1030
165°	2435	2432	2432	2448	2437	687
175°	2534	2527	2523	2538	2525	241
180°	2538	2538	2538	2538	2538	

TEST NUMBER: P922332

CATALOG NUMBER: DFN2DIP-PN4F0-060D090US940-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2081.8	2081.8	2081.8	2081.8	2081.8
2.5°	2093.9	2083.9	2061.8	2081.8	2078.0
5°	2081.8	2073.9	2051.8	2067.8	2064.0
7.5°	2067.8	2055.9	2033.8	2050.0	2045.9
10°	2045.9	2031.9	2007.9	2023.8	2017.9
12.5°	2015.8	2003.9	1979.9	1989.9	1985.8
15°	1981.7	1969.9	1943.8	1951.9	1941.9
17.5°	1939.7	1927.9	1901.8	1911.6	1901.8
20°	1893.6	1881.8	1853.7	1859.7	1851.8
22.5°	1847.8	1829.7	1803.6	1803.6	1799.6
25°	1793.6	1777.7	1743.7	1747.5	1743.7
27.5°	1733.5	1719.5	1693.5	1687.7	1677.7
30°	1673.7	1657.4	1627.5	1621.6	1613.5
32.5°	1609.4	1597.6	1565.5	1553.4	1545.3
35°	1547.5	1527.5	1495.4	1483.3	1473.3
37.5°	1477.4	1459.3	1427.3	1413.2	1403.2
40°	1405.3	1389.2	1357.2	1339.3	1331.2
42.5°	1335.2	1319.1	1287.3	1267.1	1255.2
45°	1259.3	1245.2	1215.0	1193.2	1185.1
47.5°	1185.1	1171.1	1139.1	1117.0	1105.0
50°	1107.0	1097.0	1069.0	1040.9	1030.9
52.5°	1030.9	1016.9	991.0	968.9	954.9
55°	953.0	940.8	916.9	892.9	882.9
57.5°	874.9	864.9	838.7	814.8	806.6
60°	796.7	788.8	760.8	738.7	732.7
62.5°	720.6	706.6	686.6	666.6	658.6
65°	642.7	630.6	610.6	592.5	582.6
67.5°	562.6	552.4	534.6	520.6	512.5
70°	488.5	480.5	462.4	448.4	440.5
72.5°	412.4	404.4	394.4	380.4	374.4
75°	336.2	332.4	322.2	310.3	314.3
77.5°	268.2	260.2	256.1	250.2	244.2
80°	200.3	198.1	194.1	188.2	184.1
82.5°	136.2	136.2	134.2	126.2	126.2
85°	81.9	80.1	78.1	72.0	70.1
87.5°	36.1	32.1	28.0	22.1	20.0
90°	2.3	27.6	75.0	70.4	72.7
92.5°	47.4	64.3	66.6	68.8	68.8
95°	111.7	133.1	137.0	137.0	133.1
97.5°	185.9	205.8	214.3	214.3	214.3
100°	271.6	289.3	295.3	295.3	293.1
102.5°	361.9	375.0	383.3	385.7	383.3
105°	460.7	466.7	471.4	475.2	475.2
107.5°	558.6	567.8	567.8	569.3	558.6
110°	653.4	665.8	665.8	665.8	659.6

TEST NUMBER: P922332

CATALOG NUMBER: DFN2DIP-PN4F0-060D090US940-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	756.0	769.0	766.7	760.6	756.0
115°	857.0	869.2	865.4	863.2	857.0
117.5°	957.3	974.1	963.4	957.3	951.1
120°	1058.3	1075.0	1058.3	1058.3	1051.3
122.5°	1150.0	1171.5	1160.8	1154.7	1150.0
125°	1246.5	1265.6	1259.5	1252.6	1250.4
127.5°	1340.6	1364.3	1355.9	1346.8	1340.6
130°	1428.6	1456.2	1452.3	1447.7	1439.3
132.5°	1527.3	1548.7	1550.2	1539.5	1533.5
135°	1612.2	1635.9	1640.6	1638.3	1632.2
137.5°	1707.1	1726.3	1730.1	1728.6	1719.4
140°	1790.6	1809.6	1820.3	1820.3	1812.0
142.5°	1876.2	1895.3	1901.5	1903.8	1895.3
145°	1957.4	1972.6	1984.9	1987.2	1978.8
147.5°	2030.1	2049.2	2058.3	2062.2	2053.8
150°	2105.1	2118.1	2126.5	2133.3	2126.5
152.5°	2171.6	2184.6	2195.3	2203.8	2195.3
155°	2238.2	2244.3	2251.2	2261.9	2255.0
157.5°	2295.5	2300.2	2304.0	2319.2	2308.5
160°	2346.8	2351.4	2353.8	2366.7	2357.5
162.5°	2394.2	2394.2	2396.6	2411.1	2400.4
165°	2434.8	2432.5	2432.5	2447.8	2437.1
167.5°	2471.6	2464.7	2464.7	2479.9	2469.2
170°	2499.1	2493.0	2490.7	2506.0	2493.0
172.5°	2518.2	2512.1	2509.8	2525.1	2512.1
175°	2533.5	2527.4	2522.8	2538.2	2525.1
177.5°	2541.9	2535.8	2531.2	2544.2	2531.2
180°	2538.2	2538.2	2538.2	2538.2	2538.2

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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	8.02	8.82	9.04	9.85	11.22	7.58	8.38	8.60	9.41	10.78
	3H	9.68	10.40	10.71	11.43	12.83	9.20	9.92	10.23	10.95	12.34
	4H	10.27	10.95	11.31	11.99	13.38	9.78	10.46	10.82	11.50	12.90
	6H	10.67	11.29	11.72	12.34	13.75	10.18	10.80	11.23	11.84	13.25
	8H	10.77	11.37	11.83	12.43	13.83	10.28	10.88	11.33	11.93	13.34
	12H	10.82	11.39	11.88	12.44	13.87	10.32	10.89	11.38	11.94	13.37
4H	2H	8.48	9.16	9.52	10.20	11.59	8.13	8.81	9.17	9.84	11.24
	3H	10.34	10.91	11.40	11.97	13.39	9.94	10.51	10.99	11.57	12.98
	4H	11.06	11.58	12.12	12.63	14.07	10.64	11.16	11.70	12.21	13.65
	6H	11.57	12.02	12.64	13.10	14.52	11.15	11.59	12.22	12.67	14.10
	8H	11.72	12.14	12.79	13.21	14.65	11.29	11.71	12.36	12.78	14.22
	12H	11.79	12.17	12.88	13.26	14.70	11.35	11.73	12.44	12.82	14.26
8H	4H	11.25	11.67	12.32	12.74	14.18	10.88	11.29	11.95	12.37	13.81
	6H	11.88	12.22	12.97	13.34	14.78	11.50	11.85	12.60	12.96	14.40
	8H	12.10	12.40	13.20	13.50	14.96	11.72	12.02	12.82	13.12	14.58
	12H	12.23	12.50	13.34	13.59	15.09	11.83	12.10	12.93	13.19	14.69
12H	4H	11.23	11.61	12.32	12.69	14.14	10.87	11.25	11.96	12.33	13.78
	6H	11.91	12.21	13.01	13.31	14.77	11.54	11.85	12.64	12.94	14.40
	8H	12.15	12.42	13.25	13.51	15.01	11.78	12.04	12.88	13.14	14.64