

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: P924977

Luminaire Tested: DFN2DIP-PN4F0-040D060US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924977
REPORT IS A COMBINATION OF REPORTS P901165 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-040D060US950-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

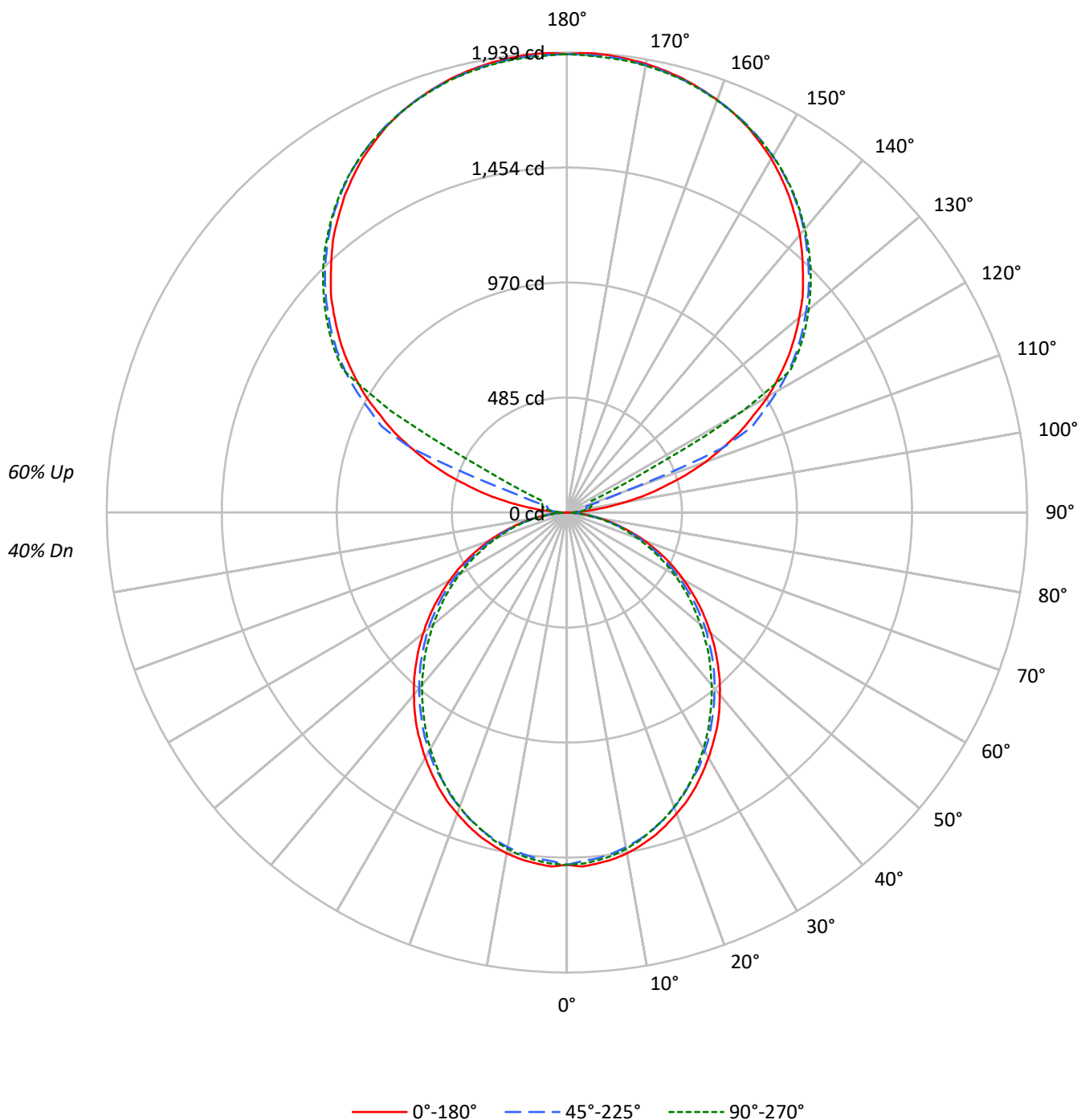
Lumens per Lamp: N/A
Luminaire Lumens: 9444.6 lumens
Efficiency: N/A
Efficacy: 120.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

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	95	95	95	95	78	78	78	62	62	62	47	47	47
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1084	1084	1084
5°	1086	1069	1076
10°	1077	1055	1062
15°	1061	1037	1039
20°	1040	1013	1016
25°	1018	985	989
30°	992	958	955
35°	966	927	919
40°	935	895	885
45°	904	863	850
50°	870	829	809
55°	835	791	772
60°	795	745	729
65°	751	697	679
70°	695	639	625
75°	618	570	575
80°	525	481	480
85°	380	328	321

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1031 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	139.8	1.5
10°-20°	393.2	4.2
20°-30°	577.9	6.1
30°-40°	671.2	7.1
40°-50°	670.3	7.1
50°-60°	584.5	6.2
60°-70°	432.1	4.6
70°-80°	244.5	2.6
80°-90°	67.9	0.7
90°-100°	63.7	0.7
100°-110°	237.5	2.5
110°-120°	629.8	6.7
120°-130°	1044.5	11.1
130°-140°	1109.5	11.7
140°-150°	1031.2	10.9
150°-160°	829.1	8.8
160°-170°	534.2	5.7
170°-180°	183.9	1.9
0°-30°	1110.8	11.8
0°-40°	1782.0	18.9
0°-60°	3036.8	32.2
0°-90°	3781.2	40.0
90°-120°	930.9	9.9
90°-150°	4116.2	43.6
90°-180°	5663.0	60.0
0°-180°	9444.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1485	1485	1485	1485	1485	
5°	1485	1479	1463	1475	1472	141
15°	1413	1405	1386	1392	1385	398
25°	1279	1268	1244	1246	1244	589
35°	1104	1090	1067	1058	1051	689
45°	898	888	867	851	845	693
55°	680	671	654	637	630	608
65°	458	450	436	423	416	453
75°	240	237	230	221	224	256
85°	58	57	56	51	50	65
90°	1	17	28	35	38	9
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°	1484.8	1484.8	1484.8	1484.8	1484.8
2.5°	1493.5	1486.3	1470.6	1484.8	1482.1
5°	1484.8	1479.2	1463.4	1474.8	1472.1
7.5°	1474.8	1466.3	1450.6	1462.1	1459.2
10°	1459.2	1449.2	1432.1	1443.5	1439.2
12.5°	1437.7	1429.2	1412.1	1419.3	1416.3
15°	1413.4	1405.0	1386.4	1392.1	1385.0
17.5°	1383.5	1375.0	1356.4	1363.5	1356.4
20°	1350.6	1342.1	1322.1	1326.3	1320.8
22.5°	1317.9	1305.0	1286.4	1286.4	1283.5
25°	1279.2	1267.9	1243.6	1246.4	1243.6
27.5°	1236.4	1226.4	1208.0	1203.7	1196.6
30°	1193.6	1182.2	1160.8	1156.5	1150.8
32.5°	1147.9	1139.5	1116.6	1108.0	1102.2
35°	1103.7	1089.5	1066.6	1058.0	1050.8
37.5°	1053.7	1040.8	1017.9	1008.0	1000.8
40°	1002.4	990.8	967.9	955.2	949.5
42.5°	952.4	940.8	918.1	903.7	895.2
45°	898.1	888.2	866.6	851.1	845.2
47.5°	845.2	835.2	812.4	796.7	788.2
50°	789.5	782.4	762.4	742.4	735.2
52.5°	735.2	725.3	706.8	691.1	681.1
55°	679.7	671.0	654.0	636.8	629.7
57.5°	623.9	616.9	598.2	581.1	575.4
60°	568.2	562.6	542.6	526.9	522.6
62.5°	514.0	504.0	489.8	475.5	469.7
65°	458.4	449.7	435.5	422.6	415.6
67.5°	401.3	394.0	381.3	371.3	365.6
70°	348.4	342.7	329.8	319.8	314.2
72.5°	294.2	288.4	281.3	271.3	267.0
75°	239.8	237.1	229.8	221.3	224.2
77.5°	191.3	185.6	182.7	178.4	174.2
80°	142.8	141.3	138.4	134.2	131.4
82.5°	97.1	97.1	95.8	90.0	90.0
85°	58.5	57.1	55.7	51.3	50.0
87.5°	25.8	22.9	20.0	15.7	14.2
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	6.56	7.34	7.60	8.38	9.79	6.12	6.90	7.16	7.94	9.35
	3H	8.22	8.92	9.27	9.97	11.40	7.73	8.43	8.78	9.49	10.91
	4H	8.80	9.47	9.86	10.52	11.95	8.32	8.98	9.38	10.03	11.47
	6H	9.20	9.81	10.27	10.87	12.32	8.71	9.32	9.78	10.38	11.82
	8H	9.31	9.89	10.38	10.96	12.40	8.81	9.39	9.89	10.47	11.91
	12H	9.35	9.90	10.43	10.97	12.44	8.85	9.40	9.93	10.47	11.94
4H	2H	7.01	7.67	8.08	8.73	10.16	6.66	7.32	7.73	8.38	9.81
	3H	8.87	9.43	9.95	10.51	11.96	8.47	9.02	9.55	10.11	11.55
	4H	9.59	10.09	10.67	11.17	12.64	9.17	9.68	10.25	10.75	12.22
	6H	10.10	10.54	11.19	11.63	13.09	9.68	10.11	10.76	11.21	12.67
	8H	10.25	10.66	11.34	11.75	13.22	9.82	10.23	10.91	11.32	12.79
	12H	10.32	10.69	11.43	11.79	13.27	9.88	10.25	10.99	11.35	12.83
8H	4H	9.78	10.18	10.87	11.27	12.75	9.41	9.81	10.50	10.90	12.38
	6H	10.41	10.74	11.52	11.88	13.35	10.03	10.37	11.14	11.50	12.97
	8H	10.63	10.92	11.75	12.04	13.53	10.25	10.54	11.36	11.65	13.15
	12H	10.76	11.02	11.88	12.13	13.66	10.36	10.62	11.48	11.73	13.26
12H	4H	9.76	10.13	10.87	11.23	12.71	9.40	9.76	10.50	10.87	12.35
	6H	10.44	10.73	11.56	11.85	13.34	10.07	10.37	11.19	11.48	12.97
	8H	10.68	10.94	11.80	12.05	13.58	10.31	10.56	11.43	11.67	13.21

END OF REPORT