

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: P922349

Luminaire Tested: DFN2DIP-PN4F0-070D040US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922349
REPORT IS A COMBINATION OF REPORTS P901135 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D040US940-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

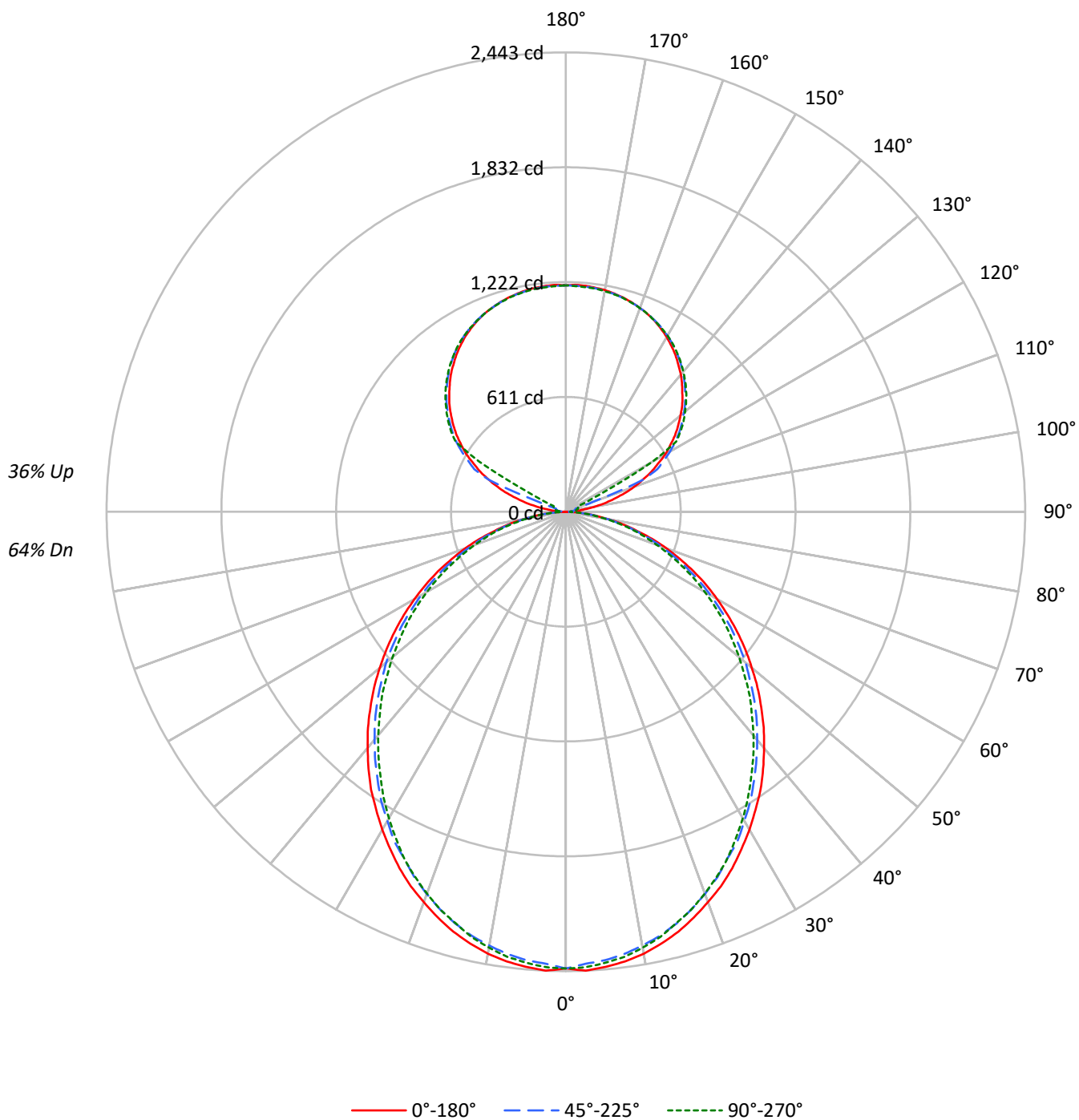
Lumens per Lamp: N/A
Luminaire Lumens: 9710.8 lumens
Efficiency: N/A
Efficacy: 100.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 97
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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
RCR																	
0	110	110	110	110	104	104	104	104	91	91	91		79	79	79		69
1	101	96	92	89	94	91	87	84	80	77	75		70	68	66		61
2	92	84	78	73	86	79	74	69	70	66	62		61	58	55		53
3	84	74	67	61	78	70	63	58	62	57	52		54	50	47		47
4	77	66	58	51	72	62	55	49	55	49	45		48	44	40		42
5	71	59	50	44	66	55	48	42	49	43	39		44	39	35		38
6	65	53	44	38	61	50	42	37	44	38	34		39	34	31		35
7	60	48	39	34	56	45	38	32	40	34	30		36	31	27		32
8	56	43	35	30	52	41	34	29	37	31	27		33	28	24		29
9	52	40	32	27	49	38	31	26	34	28	24		30	25	22		27
10	49	36	29	24	46	35	28	23	31	26	22		28	23	20		25

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1773	1773	1773
5°	1776	1748	1760
10°	1761	1725	1737
15°	1735	1697	1700
20°	1700	1658	1662
25°	1666	1611	1618
30°	1622	1567	1563
35°	1581	1516	1504
40°	1530	1463	1448
45°	1479	1411	1390
50°	1424	1357	1324
55°	1365	1293	1263
60°	1300	1218	1193
65°	1228	1140	1110
70°	1137	1045	1022
75°	1011	932	941
80°	858	788	784
85°	621	538	525

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1479 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	228.6	2.4
10°-20°	643.2	6.6
20°-30°	945.2	9.7
30°-40°	1097.8	11.3
40°-50°	1096.5	11.3
50°-60°	956.1	9.8
60°-70°	706.8	7.3
70°-80°	399.9	4.1
80°-90°	107.7	1.1
90°-100°	39.7	0.4
100°-110°	148.0	1.5
110°-120°	392.4	4.0
120°-130°	650.9	6.7
130°-140°	691.4	7.1
140°-150°	642.6	6.6
150°-160°	516.6	5.3
160°-170°	332.9	3.4
170°-180°	114.6	1.2
0°-30°	1817.0	18.7
0°-40°	2914.9	30.0
0°-60°	4967.4	51.2
0°-90°	6181.7	63.7
90°-120°	580.1	6.0
90°-150°	2565.0	26.4
90°-180°	3529.0	36.3
0°-180°	9710.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2429	2429	2429	2429	2429	
5°	2429	2420	2394	2412	2408	231
15°	2312	2298	2268	2277	2266	651
25°	2093	2074	2034	2039	2034	963
35°	1805	1782	1745	1730	1719	1127
45°	1469	1453	1418	1392	1383	1134
55°	1112	1098	1070	1042	1030	994
65°	750	736	712	691	680	741
75°	392	388	376	362	367	419
85°	96	94	91	84	82	107
90°	1	10	17	22	24	9
95°	56	28	34	38	38	67
105°	265	291	53	63	66	283
115°	501	516	537	134	72	493
125°	708	720	736	742	745	632
135°	876	890	898	907	905	677
145°	1016	1016	1030	1036	1032	636
155°	1119	1112	1122	1127	1120	516
165°	1179	1174	1177	1183	1177	333
175°	1206	1200	1202	1208	1199	115
180°	1204	1204	1204	1204	1204	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2428.8	2428.8	2428.8	2428.8	2428.8
2.5°	2442.9	2431.2	2405.5	2428.8	2424.3
5°	2428.8	2419.7	2393.9	2412.4	2408.0
7.5°	2412.4	2398.5	2372.8	2391.7	2386.9
10°	2386.9	2370.5	2342.5	2361.2	2354.2
12.5°	2351.7	2337.9	2309.9	2321.5	2316.8
15°	2312.1	2298.2	2267.7	2277.2	2265.5
17.5°	2263.0	2249.2	2218.7	2230.3	2218.7
20°	2209.2	2195.4	2162.7	2169.6	2160.4
22.5°	2155.7	2134.7	2104.2	2104.2	2099.4
25°	2092.6	2073.9	2034.3	2038.8	2034.3
27.5°	2022.4	2006.1	1975.9	1968.9	1957.2
30°	1952.6	1933.7	1898.8	1891.9	1882.4
32.5°	1877.7	1863.9	1826.4	1812.3	1802.9
35°	1805.4	1782.1	1744.6	1730.5	1718.9
37.5°	1723.6	1702.5	1665.1	1648.8	1637.1
40°	1639.6	1620.8	1583.3	1562.5	1553.1
42.5°	1557.8	1539.0	1501.8	1478.3	1464.4
45°	1469.1	1452.8	1417.6	1392.0	1382.6
47.5°	1382.6	1366.3	1328.8	1303.1	1289.2
50°	1291.5	1279.8	1247.1	1214.4	1202.7
52.5°	1202.7	1186.4	1156.2	1130.4	1114.0
55°	1111.8	1097.7	1069.7	1041.7	1030.0
57.5°	1020.7	1009.0	978.5	950.5	941.1
60°	929.4	920.2	887.6	861.8	854.9
62.5°	840.7	824.4	801.1	777.8	768.4
65°	749.8	735.7	712.4	691.3	679.7
67.5°	656.4	644.5	623.7	607.3	597.9
70°	569.9	560.5	539.4	523.1	513.9
72.5°	481.2	471.8	460.1	443.8	436.8
75°	392.3	387.8	375.9	362.0	366.8
77.5°	313.0	303.5	298.8	291.9	285.0
80°	233.6	231.2	226.5	219.5	214.8
82.5°	158.8	158.8	156.6	147.2	147.2
85°	95.7	93.5	91.2	84.0	81.8
87.5°	42.1	37.5	32.7	25.8	23.3
90°	0.8	10.4	17.4	21.8	23.5
92.5°	21.8	18.3	20.9	22.6	23.5
95°	56.5	27.8	33.9	38.3	37.5
97.5°	101.9	30.5	44.4	47.1	47.9
100°	154.2	34.9	49.7	56.5	58.3
102.5°	211.6	210.0	51.4	60.9	63.6
105°	264.7	291.0	53.1	62.7	66.2
107.5°	326.6	348.4	54.9	64.5	67.9
110°	385.9	404.1	152.5	65.4	68.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	441.7	457.3	442.5	67.1	69.7
115°	500.8	515.6	537.4	134.1	71.5
117.5°	552.2	569.6	584.5	459.9	231.7
120°	609.8	622.8	638.5	649.0	531.4
122.5°	658.4	672.4	689.9	695.1	696.0
125°	708.1	719.5	736.0	742.2	744.8
127.5°	753.4	765.6	778.7	787.5	788.3
130°	796.1	810.1	819.6	829.2	828.4
132.5°	839.6	851.0	860.6	868.4	867.6
135°	876.3	890.3	898.0	906.8	905.1
137.5°	914.5	925.0	933.8	942.4	939.9
140°	952.0	959.0	968.6	976.4	972.1
142.5°	983.5	989.5	1000.9	1007.7	1003.4
145°	1016.5	1015.7	1030.4	1036.5	1032.2
147.5°	1045.2	1042.6	1057.4	1061.8	1058.4
150°	1073.1	1067.0	1081.0	1086.2	1081.8
152.5°	1096.6	1089.7	1102.7	1108.0	1101.9
155°	1119.3	1111.5	1121.9	1127.1	1120.2
157.5°	1137.6	1130.6	1138.5	1144.6	1137.6
160°	1153.2	1148.0	1153.2	1158.4	1152.4
162.5°	1167.2	1162.0	1166.4	1172.4	1164.6
165°	1179.4	1174.2	1176.8	1182.9	1176.8
167.5°	1189.0	1183.7	1186.4	1192.5	1184.6
170°	1196.9	1191.6	1193.3	1199.4	1191.6
172.5°	1202.0	1196.9	1198.6	1204.7	1196.9
175°	1206.3	1200.2	1202.0	1208.1	1199.4
177.5°	1208.1	1202.0	1202.9	1209.1	1201.2
180°	1203.8	1203.8	1203.8	1203.8	1203.8

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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	10.44	11.44	11.27	12.29	13.36	10.00	11.00	10.83	11.85	12.91
	3H	12.11	13.01	12.96	13.87	14.96	11.63	12.53	12.47	13.39	14.48
	4H	12.71	13.56	13.57	14.43	15.53	12.22	13.07	13.08	13.94	15.04
	6H	13.12	13.90	13.99	14.78	15.89	12.63	13.41	13.50	14.29	15.40
	8H	13.23	13.97	14.11	14.87	15.98	12.74	13.48	13.62	14.38	15.49
	12H	13.28	13.99	14.17	14.88	16.02	12.78	13.49	13.67	14.38	15.52
4H	2H	10.92	11.77	11.78	12.64	13.74	10.57	11.42	11.43	12.28	13.38
	3H	12.80	13.51	13.68	14.41	15.53	12.40	13.11	13.27	14.01	15.12
	4H	13.52	14.17	14.41	15.07	16.21	13.11	13.75	13.99	14.65	15.79
	6H	14.05	14.61	14.95	15.53	16.67	13.62	14.18	14.53	15.10	16.25
	8H	14.20	14.72	15.11	15.64	16.80	13.77	14.30	14.68	15.21	16.37
	12H	14.28	14.75	15.21	15.69	16.85	13.84	14.31	14.77	15.25	16.41
8H	4H	13.73	14.25	14.64	15.17	16.33	13.36	13.88	14.27	14.80	15.95
	6H	14.37	14.80	15.30	15.76	16.92	13.99	14.43	14.93	15.38	16.54
	8H	14.60	14.98	15.54	15.93	17.10	14.21	14.59	15.15	15.54	16.72
	12H	14.74	15.07	15.68	16.01	17.24	14.33	14.67	15.28	15.61	16.84
12H	4H	13.72	14.19	14.65	15.13	16.29	13.36	13.83	14.29	14.77	15.93
	6H	14.40	14.79	15.34	15.73	16.91	14.04	14.42	14.98	15.37	16.54
	8H	14.65	14.99	15.60	15.93	17.16	14.28	14.62	15.23	15.56	16.78