

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: P929254

Luminaire Tested: DFN2DIP-HX4F0-070D050US940-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929254
REPORT IS A COMBINATION OF REPORTS P900844 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D050US940-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

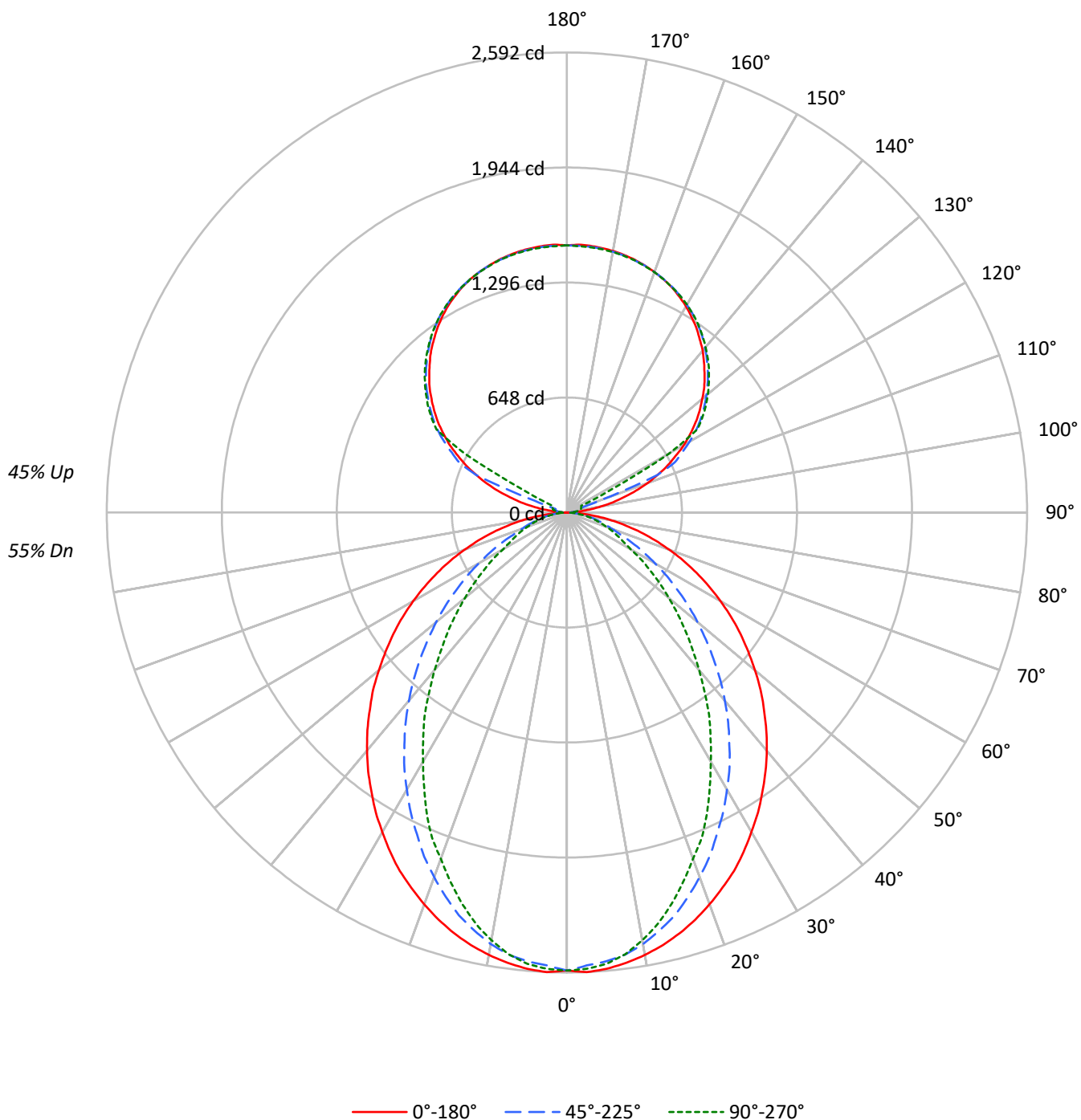
Lumens per Lamp: N/A
Luminaire Lumens: 9722.8 lumens
Efficiency: N/A
Efficacy: 93.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 103.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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	108	108	108	108	100	100	100	100	86	86	86	73	73	73	60	60	60
1	99	95	91	88	92	89	85	82	76	74	72	65	63	62	54	53	52
2	91	84	78	73	84	78	73	69	67	63	60	57	55	52	48	46	45
3	83	74	67	61	77	69	63	58	60	55	51	51	48	45	43	41	39
4	76	66	58	52	71	62	55	50	54	48	44	46	42	39	39	36	34
5	70	59	51	45	65	55	48	43	48	43	38	42	37	34	35	32	30
6	65	53	45	40	60	50	43	38	44	38	34	38	33	30	32	29	26
7	60	48	40	35	56	45	38	33	40	34	30	35	30	27	30	26	24
8	56	44	36	31	52	41	34	30	36	31	27	32	27	24	27	24	21
9	52	40	33	28	49	38	31	27	34	28	24	29	25	22	25	22	19
10	49	37	30	25	46	35	28	24	31	26	22	27	23	20	24	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1919	1919	1919
5°	1922	1889	1901
10°	1903	1852	1839
15°	1877	1791	1743
20°	1843	1707	1626
25°	1807	1612	1513
30°	1760	1515	1369
35°	1713	1411	1243
40°	1666	1303	1098
45°	1611	1184	967
50°	1554	1063	839
55°	1495	934	716
60°	1426	799	590
65°	1347	662	531
70°	1251	534	480
75°	1131	471	437
80°	957	396	379
85°	669	265	286

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1611 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	241.9	2.5
10°-20°	664.0	6.8
20°-30°	932.2	9.6
30°-40°	1016.1	10.5
40°-50°	933.9	9.6
50°-60°	733.5	7.5
60°-70°	477.4	4.9
70°-80°	245.7	2.5
80°-90°	65.4	0.7
90°-100°	49.7	0.5
100°-110°	185.0	1.9
110°-120°	490.7	5.0
120°-130°	813.9	8.4
130°-140°	864.5	8.9
140°-150°	803.5	8.3
150°-160°	646.0	6.6
160°-170°	416.2	4.3
170°-180°	143.3	1.5
0°-30°	1838.0	18.9
0°-40°	2854.1	29.4
0°-60°	4521.5	46.5
0°-90°	5310.0	54.6
90°-120°	725.4	7.5
90°-150°	3207.3	33.0
90°-180°	4413.0	45.4
0°-180°	9722.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2581	2581	2581	2581	2581	
5°	2581	2569	2538	2560	2553	245
15°	2454	2429	2349	2305	2282	692
25°	2228	2153	1999	1903	1868	1025
35°	1920	1801	1595	1448	1396	1202
45°	1570	1413	1168	1002	946	1212
55°	1193	1011	759	619	575	1066
65°	806	616	406	327	320	799
75°	430	266	187	170	168	454
85°	100	51	44	44	44	115
90°	1	13	22	27	29	9
95°	71	35	42	48	47	84
105°	331	364	66	78	83	354
115°	626	645	672	168	89	617
125°	885	900	920	928	931	790
135°	1096	1113	1123	1134	1132	846
145°	1271	1270	1288	1296	1291	795
155°	1400	1390	1403	1409	1401	645
165°	1475	1468	1471	1479	1471	417
175°	1508	1501	1503	1511	1500	144
180°	1505	1505	1505	1505	1505	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2580.6	2580.6	2580.6	2580.6	2580.6
2.5°	2592.2	2580.6	2554.9	2578.4	2573.7
5°	2580.6	2569.0	2538.5	2559.6	2552.6
7.5°	2559.6	2545.7	2513.0	2522.1	2510.5
10°	2531.6	2515.3	2468.6	2461.5	2447.6
12.5°	2496.6	2475.6	2412.4	2398.5	2372.7
15°	2454.5	2428.7	2349.4	2305.1	2281.8
17.5°	2405.5	2368.1	2270.0	2218.6	2181.2
20°	2349.4	2302.6	2185.9	2127.7	2076.1
22.5°	2288.8	2235.0	2099.4	2020.1	1985.2
25°	2228.0	2153.2	1999.1	1903.4	1868.3
27.5°	2155.7	2076.1	1905.7	1796.0	1742.2
30°	2078.6	1989.7	1802.8	1683.9	1620.8
32.5°	2003.8	1896.3	1705.0	1564.7	1506.2
35°	1919.8	1800.6	1595.3	1448.1	1396.5
37.5°	1838.1	1709.4	1492.4	1331.0	1272.9
40°	1751.5	1611.6	1384.8	1219.1	1158.4
42.5°	1662.9	1513.5	1277.5	1104.6	1046.4
45°	1569.5	1412.8	1167.8	1001.8	945.8
47.5°	1480.7	1315.0	1062.7	896.7	845.4
50°	1382.6	1216.9	959.9	798.6	749.8
52.5°	1286.7	1111.5	861.8	707.6	663.3
55°	1193.3	1011.2	758.9	619.0	574.6
57.5°	1097.7	910.8	668.0	537.2	499.8
60°	999.6	812.7	572.1	453.2	415.8
62.5°	903.9	717.1	490.3	378.4	359.7
65°	805.7	616.5	406.4	327.1	319.9
67.5°	712.4	523.1	327.1	287.1	280.3
70°	614.2	432.1	270.8	247.5	238.1
72.5°	520.8	347.9	226.5	207.9	203.2
75°	429.7	266.1	186.8	170.5	168.2
77.5°	338.7	189.0	147.2	137.7	133.1
80°	254.5	135.5	112.0	102.8	102.8
82.5°	177.4	91.2	77.1	72.3	72.3
85°	100.4	51.3	44.3	44.3	44.3
87.5°	37.4	18.6	18.6	16.3	16.3
90°	1.1	13.0	21.8	27.3	29.3
92.5°	27.3	22.9	26.1	28.4	29.3
95°	70.7	34.8	42.5	48.0	46.8
97.5°	127.4	38.2	55.5	58.9	59.9
100°	192.9	43.6	62.1	70.7	73.0
102.5°	264.7	262.5	64.3	76.2	79.6
105°	331.1	363.8	66.5	78.4	82.8
107.5°	408.4	435.6	68.7	80.5	85.0
110°	482.6	505.3	190.6	81.7	86.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	552.2	571.8	553.3	83.8	87.1
115°	626.3	644.7	672.0	167.8	89.4
117.5°	690.5	712.3	730.9	575.0	289.7
120°	762.4	778.7	798.3	811.5	664.4
122.5°	823.3	840.8	862.7	869.2	870.3
125°	885.4	899.7	920.4	927.9	931.2
127.5°	942.0	957.3	973.8	984.6	985.7
130°	995.5	1013.0	1024.8	1036.9	1035.9
132.5°	1050.0	1064.2	1076.0	1085.9	1084.9
135°	1095.7	1113.2	1122.8	1133.9	1131.7
137.5°	1143.5	1156.7	1167.6	1178.5	1175.3
140°	1190.4	1199.2	1211.1	1220.9	1215.5
142.5°	1229.7	1237.4	1251.5	1260.1	1254.7
145°	1271.1	1269.9	1288.4	1296.1	1290.6
147.5°	1307.0	1303.7	1322.2	1327.7	1323.4
150°	1341.8	1334.3	1351.6	1358.2	1352.7
152.5°	1371.2	1362.5	1378.9	1385.5	1377.8
155°	1399.5	1389.8	1402.8	1409.4	1400.7
157.5°	1422.4	1413.7	1423.5	1431.2	1422.4
160°	1442.1	1435.5	1442.1	1448.5	1440.9
162.5°	1459.4	1453.0	1458.3	1466.0	1456.2
165°	1474.7	1468.2	1471.4	1479.0	1471.4
167.5°	1486.7	1480.1	1483.5	1491.1	1481.3
170°	1496.5	1489.9	1492.1	1499.7	1489.9
172.5°	1503.0	1496.5	1498.7	1506.3	1496.5
175°	1508.5	1500.8	1503.0	1510.6	1499.7
177.5°	1510.6	1503.0	1504.2	1511.8	1501.9
180°	1505.2	1505.2	1505.2	1505.2	1505.2

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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	9.83	10.70	10.76	11.64	12.85	5.81	6.68	6.73	7.61	8.82
	3H	11.51	12.29	12.45	13.24	14.47	7.00	7.78	7.94	8.72	9.95
	4H	12.13	12.86	13.08	13.81	15.05	7.45	8.19	8.40	9.14	10.38
	6H	12.55	13.23	13.51	14.18	15.43	7.78	8.45	8.74	9.41	10.66
	8H	12.68	13.32	13.65	14.29	15.54	7.87	8.51	8.84	9.49	10.74
	12H	12.74	13.35	13.71	14.32	15.59	7.92	8.53	8.89	9.49	10.77
4H	2H	9.86	10.59	10.81	11.54	12.78	6.41	7.14	7.36	8.09	9.33
	3H	11.69	12.30	12.66	13.28	14.54	7.76	8.37	8.73	9.35	10.61
	4H	12.39	12.94	13.36	13.92	15.19	8.31	8.87	9.29	9.85	11.12
	6H	12.90	13.38	13.89	14.38	15.66	8.74	9.22	9.72	10.21	11.49
	8H	13.08	13.53	14.07	14.52	15.81	8.87	9.31	9.86	10.31	11.60
	12H	13.18	13.58	14.18	14.59	15.88	8.94	9.34	9.94	10.35	11.64
8H	4H	12.36	12.80	13.34	13.79	15.09	8.60	9.04	9.59	10.04	11.33
	6H	12.92	13.29	13.94	14.33	15.62	9.12	9.49	10.13	10.52	11.81
	8H	13.14	13.47	14.16	14.49	15.80	9.31	9.64	10.33	10.66	11.97
	12H	13.28	13.57	14.31	14.58	15.94	9.43	9.72	10.46	10.73	12.09
12H	4H	12.31	12.71	13.32	13.72	15.02	8.60	9.01	9.61	10.02	11.31
	6H	12.90	13.23	13.92	14.25	15.55	9.17	9.49	10.19	10.52	11.82
	8H	13.12	13.41	14.15	14.42	15.78	9.38	9.67	10.41	10.68	12.04