

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: P928276

Luminaire Tested: DFN2DIP-HX4F0-070D040US927-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928276
REPORT IS A COMBINATION OF REPORTS P900825 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D040US927-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

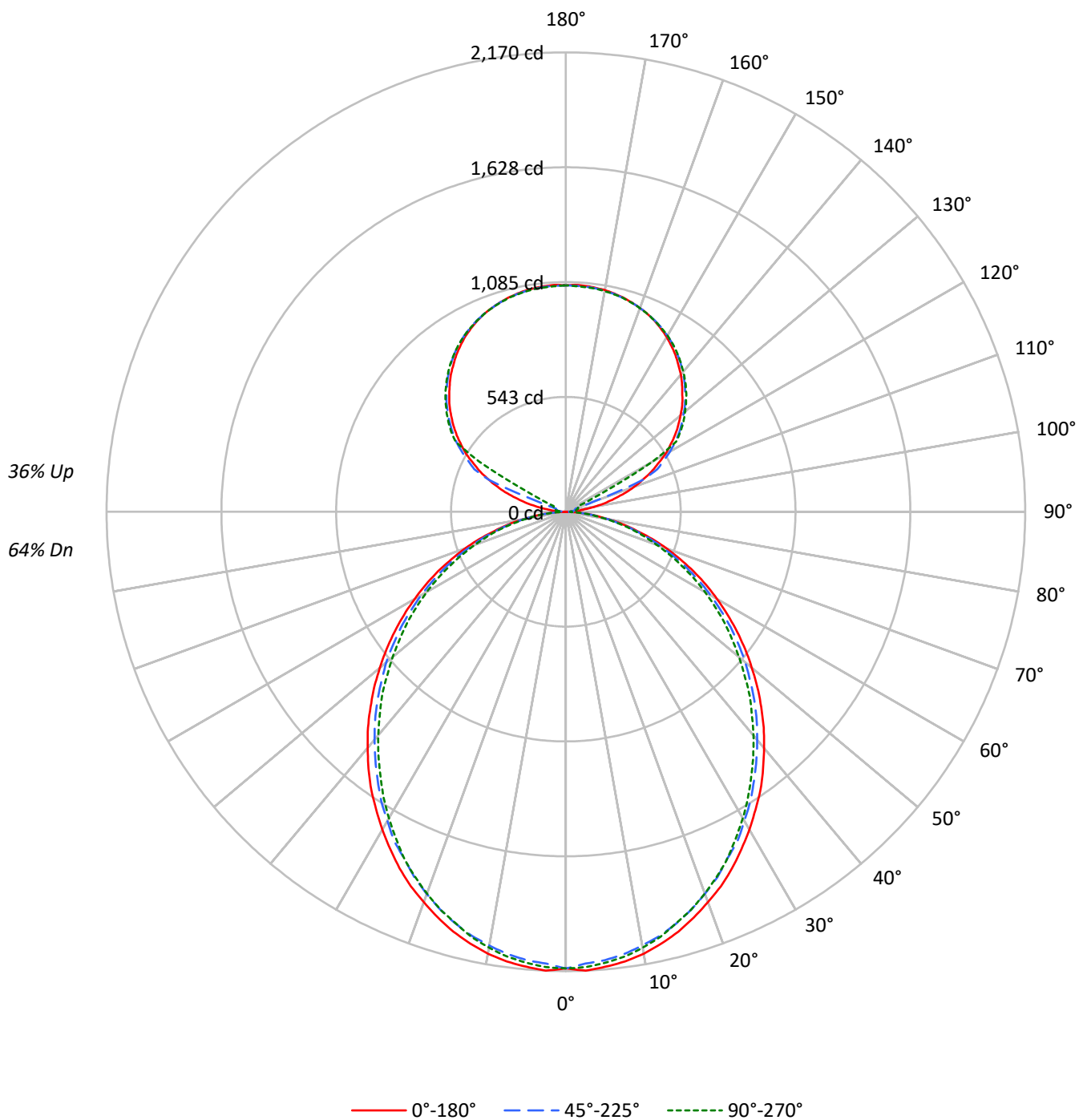
Lumens per Lamp: N/A
Luminaire Lumens: 8624.9 lumens
Efficiency: N/A
Efficacy: 89.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 96.4
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	110	110	110	110	104	104	104	104	91	91	91	79	79	79	69	69	69
1	101	96	92	89	94	91	87	84	80	77	75	70	68	66	61	59	58
2	92	84	78	73	86	79	74	69	70	66	62	61	58	55	53	51	49
3	84	74	67	61	78	70	63	58	62	57	52	54	50	47	47	44	42
4	77	66	58	51	72	62	55	49	55	49	45	48	44	40	42	39	36
5	71	59	50	44	66	55	48	42	49	43	39	44	39	35	38	34	31
6	65	53	44	38	61	50	42	37	44	38	34	39	34	31	35	31	28
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	32	28	25
8	56	43	35	30	52	41	34	29	37	31	27	33	28	24	29	25	22
9	52	40	32	27	49	38	31	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	35	28	23	31	26	22	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1604	1604	1604
5°	1607	1582	1592
10°	1594	1561	1571
15°	1571	1535	1537
20°	1539	1500	1503
25°	1508	1457	1463
30°	1468	1418	1412
35°	1431	1371	1359
40°	1385	1324	1308
45°	1339	1276	1256
50°	1289	1227	1195
55°	1237	1169	1140
60°	1178	1101	1077
65°	1113	1031	1002
70°	1031	945	921
75°	917	842	846
80°	780	711	704
85°	567	485	468

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1339 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	203.0	2.4
10°-20°	571.3	6.6
20°-30°	839.5	9.7
30°-40°	975.1	11.3
40°-50°	973.8	11.3
50°-60°	849.2	9.8
60°-70°	627.7	7.3
70°-80°	355.2	4.1
80°-90°	95.6	1.1
90°-100°	35.2	0.4
100°-110°	131.4	1.5
110°-120°	348.6	4.0
120°-130°	578.1	6.7
130°-140°	614.1	7.1
140°-150°	570.7	6.6
150°-160°	458.8	5.3
160°-170°	295.7	3.4
170°-180°	101.8	1.2
0°-30°	1613.8	18.7
0°-40°	2588.9	30.0
0°-60°	4411.9	51.2
0°-90°	5490.5	63.7
90°-120°	515.2	6.0
90°-150°	2278.1	26.4
90°-180°	3134.0	36.3
0°-180°	8624.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2157	2157	2157	2157	2157	
5°	2157	2149	2126	2143	2139	205
15°	2054	2041	2014	2022	2012	578
25°	1859	1842	1807	1811	1807	855
35°	1604	1583	1550	1537	1527	1001
45°	1305	1290	1259	1236	1228	1007
55°	988	975	950	925	915	883
65°	666	653	633	614	604	658
75°	348	344	334	322	326	372
85°	85	83	81	75	73	95
90°	1	9	15	19	21	8
95°	50	25	30	34	33	59
105°	235	258	47	56	59	251
115°	445	458	477	119	64	438
125°	629	639	654	659	662	561
135°	778	791	798	805	804	601
145°	903	902	915	921	917	565
155°	994	987	996	1001	995	458
165°	1048	1043	1045	1051	1045	296
175°	1071	1066	1068	1073	1065	102
180°	1069	1069	1069	1069	1069	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2157.2	2157.2	2157.2	2157.2	2157.2
2.5°	2169.8	2159.4	2136.5	2157.2	2153.2
5°	2157.2	2149.1	2126.2	2142.7	2138.7
7.5°	2142.7	2130.3	2107.4	2124.2	2120.0
10°	2120.0	2105.5	2080.6	2097.1	2091.0
12.5°	2088.7	2076.5	2051.6	2061.9	2057.7
15°	2053.6	2041.2	2014.1	2022.5	2012.2
17.5°	2009.9	1997.7	1970.6	1981.0	1970.6
20°	1962.2	1949.9	1920.8	1927.0	1918.9
22.5°	1914.7	1896.0	1868.9	1868.9	1864.7
25°	1858.6	1842.0	1806.9	1810.8	1806.9
27.5°	1796.3	1781.8	1754.9	1748.7	1738.4
30°	1734.2	1717.5	1686.5	1680.3	1671.9
32.5°	1667.7	1655.4	1622.2	1609.7	1601.3
35°	1603.5	1582.8	1549.5	1537.0	1526.7
37.5°	1530.9	1512.2	1478.9	1464.4	1454.0
40°	1456.3	1439.5	1406.3	1387.8	1379.4
42.5°	1383.6	1366.9	1333.9	1313.0	1300.6
45°	1304.8	1290.3	1259.0	1236.4	1228.0
47.5°	1228.0	1213.5	1180.2	1157.3	1145.1
50°	1147.1	1136.7	1107.6	1078.6	1068.2
52.5°	1068.2	1053.8	1026.9	1004.0	989.4
55°	987.5	975.0	950.1	925.2	914.8
57.5°	906.5	896.1	869.1	844.2	835.9
60°	825.5	817.3	788.4	765.5	759.3
62.5°	746.7	732.2	711.5	690.9	682.5
65°	666.0	653.4	632.7	614.0	603.7
67.5°	583.0	572.5	553.9	539.4	531.0
70°	506.2	497.9	479.1	464.6	456.4
72.5°	427.4	419.0	408.7	394.2	388.0
75°	348.4	344.4	333.8	321.6	325.7
77.5°	278.0	269.6	265.4	259.2	253.1
80°	207.5	205.4	201.2	195.0	190.8
82.5°	141.1	141.1	139.1	130.8	130.8
85°	85.0	83.0	81.0	74.6	72.6
87.5°	37.4	33.3	29.1	22.9	20.7
90°	0.7	9.3	15.4	19.4	20.8
92.5°	19.4	16.2	18.5	20.1	20.8
95°	50.2	24.7	30.1	34.1	33.3
97.5°	90.5	27.1	39.4	41.8	42.5
100°	136.9	31.0	44.1	50.2	51.8
102.5°	187.9	186.5	45.6	54.1	56.5
105°	235.1	258.4	47.2	55.7	58.8
107.5°	290.1	309.4	48.8	57.3	60.4
110°	342.8	358.9	135.4	58.1	61.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	392.3	406.1	393.0	59.6	61.9
115°	444.8	457.9	477.3	119.1	63.5
117.5°	490.5	505.9	519.2	408.4	205.8
120°	541.6	553.1	567.1	576.4	472.0
122.5°	584.8	597.2	612.8	617.4	618.2
125°	628.9	639.1	653.7	659.2	661.5
127.5°	669.2	680.0	691.7	699.4	700.1
130°	707.1	719.5	727.9	736.5	735.8
132.5°	745.7	755.9	764.4	771.3	770.6
135°	778.3	790.7	797.6	805.4	803.9
137.5°	812.3	821.5	829.4	837.1	834.8
140°	845.5	851.8	860.3	867.2	863.4
142.5°	873.5	878.9	888.9	895.0	891.2
145°	902.9	902.1	915.2	920.6	916.7
147.5°	928.3	926.0	939.2	943.0	940.0
150°	953.1	947.7	960.1	964.7	960.9
152.5°	974.0	967.8	979.4	984.1	978.7
155°	994.1	987.2	996.5	1001.1	994.9
157.5°	1010.4	1004.2	1011.2	1016.6	1010.4
160°	1024.3	1019.6	1024.3	1028.9	1023.5
162.5°	1036.6	1032.1	1035.9	1041.3	1034.4
165°	1047.5	1042.9	1045.2	1050.6	1045.2
167.5°	1056.1	1051.3	1053.8	1059.1	1052.2
170°	1063.0	1058.3	1059.9	1065.3	1058.3
172.5°	1067.6	1063.0	1064.6	1070.0	1063.0
175°	1071.4	1066.0	1067.6	1073.0	1065.3
177.5°	1073.0	1067.6	1068.4	1073.9	1066.9
180°	1069.2	1069.2	1069.2	1069.2	1069.2

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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	10.09	11.09	10.92	11.94	13.00	9.66	10.65	10.49	11.51	12.57
	3H	11.76	12.66	12.60	13.52	14.61	11.29	12.18	12.13	13.04	14.13
	4H	12.35	13.20	13.21	14.07	15.17	11.88	12.73	12.74	13.60	14.70
	6H	12.76	13.54	13.63	14.42	15.53	12.29	13.07	13.16	13.94	15.06
	8H	12.87	13.62	13.75	14.51	15.62	12.39	13.14	13.27	14.03	15.15
	12H	12.92	13.63	13.81	14.52	15.66	12.44	13.15	13.33	14.04	15.18
4H	2H	10.57	11.41	11.43	12.28	13.38	10.22	11.07	11.09	11.94	13.04
	3H	12.45	13.15	13.32	14.05	15.17	12.05	12.76	12.93	13.66	14.78
	4H	13.17	13.81	14.05	14.71	15.85	12.76	13.41	13.65	14.30	15.45
	6H	13.69	14.25	14.59	15.17	16.31	13.28	13.84	14.18	14.76	15.90
	8H	13.84	14.36	14.75	15.28	16.44	13.43	13.95	14.34	14.87	16.03
	12H	13.92	14.39	14.85	15.33	16.49	13.50	13.97	14.43	14.91	16.07
8H	4H	13.37	13.90	14.28	14.81	15.97	13.01	13.54	13.92	14.45	15.61
	6H	14.01	14.44	14.95	15.40	16.56	13.65	14.08	14.58	15.04	16.20
	8H	14.24	14.62	15.18	15.57	16.74	13.87	14.25	14.81	15.20	16.37
	12H	14.38	14.71	15.32	15.65	16.88	13.99	14.33	14.94	15.27	16.49
12H	4H	13.37	13.84	14.29	14.77	15.93	13.01	13.48	13.94	14.42	15.58
	6H	14.04	14.43	14.99	15.38	16.55	13.69	14.08	14.63	15.02	16.20
	8H	14.29	14.63	15.24	15.57	16.80	13.94	14.27	14.88	15.22	16.44