

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: P928888

Luminaire Tested: DFN2DIP-HX4F0-060D040US935-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928888
REPORT IS A COMBINATION OF REPORTS P900823 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D040US935-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

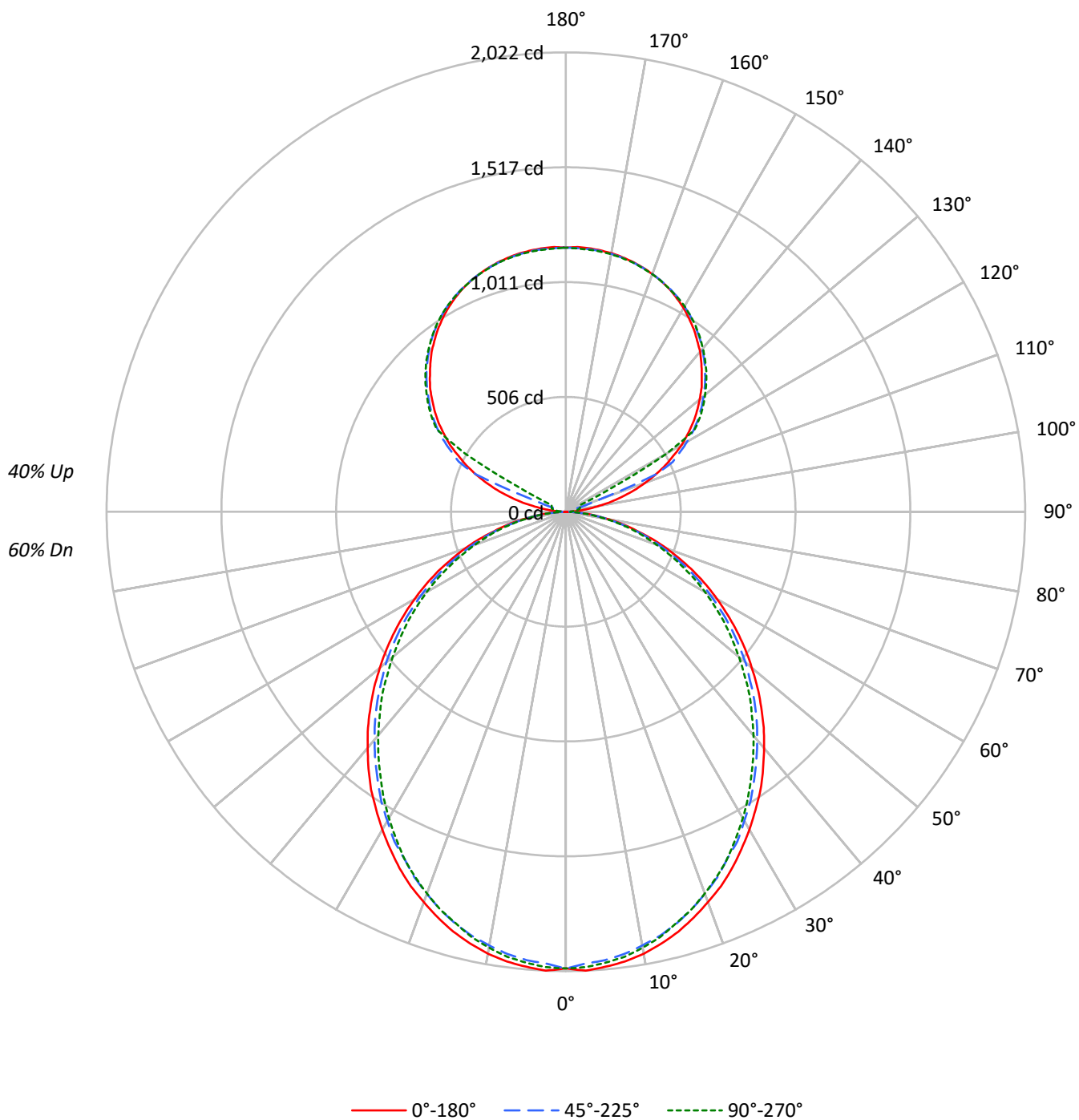
Lumens per Lamp: N/A
Luminaire Lumens: 8523.9 lumens
Efficiency: N/A
Efficacy: 101.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 84.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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	102	102	102	102	89	89	89	77	77	77	65	65	65
1	100	96	92	88	93	90	86	83	78	75	73	67	66	64	58	56	55
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	49	47
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40
4	76	65	57	51	71	61	54	48	54	48	44	47	42	39	40	37	34
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30
6	64	52	44	38	60	49	42	36	43	37	33	38	33	30	33	29	26
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1495	1495	1495
5°	1497	1474	1484
10°	1485	1454	1464
15°	1463	1430	1433
20°	1434	1397	1400
25°	1405	1358	1363
30°	1368	1321	1316
35°	1333	1277	1266
40°	1291	1233	1219
45°	1248	1189	1170
50°	1201	1143	1114
55°	1153	1090	1062
60°	1097	1026	1003
65°	1037	961	933
70°	961	880	858
75°	855	785	789
80°	727	662	656
85°	527	451	437

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1248 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.2	2.2
10°-20°	532.3	6.2
20°-30°	782.3	9.2
30°-40°	908.6	10.7
40°-50°	907.5	10.6
50°-60°	791.3	9.3
60°-70°	584.9	6.9
70°-80°	330.9	3.9
80°-90°	89.4	1.0
90°-100°	38.3	0.4
100°-110°	142.9	1.7
110°-120°	378.9	4.4
120°-130°	628.5	7.4
130°-140°	667.6	7.8
140°-150°	620.5	7.3
150°-160°	498.8	5.9
160°-170°	321.4	3.8
170°-180°	110.6	1.3
0°-30°	1503.8	17.6
0°-40°	2412.4	28.3
0°-60°	4111.1	48.2
0°-90°	5116.4	60.0
90°-120°	560.1	6.6
90°-150°	2476.6	29.1
90°-180°	3407.0	40.0
0°-180°	8523.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2010	2010	2010	2010	2010	
5°	2010	2002	1981	1997	1993	191
15°	1914	1902	1877	1885	1875	539
25°	1732	1716	1684	1687	1684	797
35°	1494	1475	1444	1432	1422	933
45°	1216	1202	1173	1152	1144	938
55°	920	908	885	862	852	823
65°	620	609	590	572	562	614
75°	325	321	311	300	304	347
85°	79	77	75	70	68	88
90°	1	10	17	21	23	8
95°	55	27	33	37	36	65
105°	256	281	51	60	64	273
115°	484	498	519	130	69	476
125°	684	695	711	717	719	610
135°	846	860	867	876	874	654
145°	982	981	995	1001	997	614
155°	1081	1073	1083	1088	1082	498
165°	1139	1134	1136	1142	1136	322
175°	1165	1159	1161	1166	1158	111
180°	1162	1162	1162	1162	1162	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2010.1	2010.1	2010.1	2010.1	2010.1
2.5°	2021.8	2012.2	1990.8	2010.1	2006.4
5°	2010.1	2002.5	1981.2	1996.6	1992.9
7.5°	1996.6	1985.1	1963.8	1979.4	1975.5
10°	1975.5	1962.0	1938.7	1954.1	1948.4
12.5°	1946.4	1934.8	1911.7	1921.3	1917.4
15°	1913.5	1902.0	1876.8	1884.6	1875.0
17.5°	1872.9	1861.5	1836.3	1845.8	1836.3
20°	1828.4	1817.0	1789.8	1795.6	1788.0
22.5°	1784.2	1766.7	1741.5	1741.5	1737.6
25°	1731.8	1716.5	1683.6	1687.3	1683.6
27.5°	1673.8	1660.3	1635.2	1629.5	1619.9
30°	1616.0	1600.3	1571.5	1565.7	1557.9
32.5°	1554.0	1542.6	1511.6	1499.9	1492.1
35°	1494.2	1474.9	1443.9	1432.2	1422.5
37.5°	1426.5	1409.0	1378.1	1364.5	1354.9
40°	1356.9	1341.4	1310.4	1293.2	1285.4
42.5°	1289.3	1273.7	1242.9	1223.5	1211.9
45°	1215.9	1202.3	1173.2	1152.1	1144.3
47.5°	1144.3	1130.8	1099.8	1078.5	1067.0
50°	1068.8	1059.2	1032.2	1005.0	995.4
52.5°	995.4	981.9	956.8	935.6	922.0
55°	920.2	908.4	885.3	862.1	852.5
57.5°	844.7	835.1	809.9	786.7	778.9
60°	769.2	761.6	734.6	713.3	707.5
62.5°	695.8	682.3	663.0	643.7	635.9
65°	620.5	608.9	589.6	572.1	562.5
67.5°	543.2	533.4	516.2	502.7	494.8
70°	471.7	463.9	446.4	432.9	425.3
72.5°	398.2	390.5	380.8	367.3	361.5
75°	324.6	321.0	311.1	299.6	303.5
77.5°	259.0	251.2	247.3	241.6	235.8
80°	193.4	191.3	187.4	181.7	177.8
82.5°	131.5	131.5	129.6	121.8	121.8
85°	79.1	77.3	75.4	69.5	67.7
87.5°	34.9	31.0	27.0	21.4	19.3
90°	0.8	10.1	16.8	21.1	22.6
92.5°	21.1	17.7	20.1	21.9	22.6
95°	54.6	26.9	32.7	37.0	36.2
97.5°	98.4	29.4	42.9	45.5	46.2
100°	148.9	33.7	48.0	54.6	56.3
102.5°	204.3	202.8	49.6	58.8	61.4
105°	255.6	280.9	51.3	60.5	63.9
107.5°	315.4	336.4	53.0	62.3	65.6
110°	372.6	390.2	147.2	63.1	66.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	426.5	441.5	427.2	64.7	67.3
115°	483.5	497.8	518.9	129.5	69.1
117.5°	533.2	550.0	564.4	444.0	223.7
120°	588.8	601.3	616.5	626.6	513.1
122.5°	635.8	649.3	666.2	671.1	672.0
125°	683.7	694.7	710.7	716.6	719.1
127.5°	727.5	739.3	751.9	760.3	761.1
130°	768.7	782.2	791.3	800.6	799.9
132.5°	810.7	821.7	831.0	838.5	837.8
135°	846.1	859.6	867.1	875.6	873.9
137.5°	883.0	893.1	901.6	910.0	907.5
140°	919.2	926.0	935.2	942.8	938.6
142.5°	949.6	955.5	966.4	973.0	968.9
145°	981.5	980.7	994.9	1000.8	996.6
147.5°	1009.2	1006.7	1021.0	1025.2	1021.9
150°	1036.1	1030.3	1043.8	1048.8	1044.6
152.5°	1058.9	1052.1	1064.7	1069.8	1063.9
155°	1080.7	1073.2	1083.3	1088.3	1081.6
157.5°	1098.4	1091.7	1099.3	1105.2	1098.4
160°	1113.5	1108.5	1113.5	1118.5	1112.7
162.5°	1127.0	1122.0	1126.2	1132.0	1124.5
165°	1138.8	1133.8	1136.3	1142.1	1136.3
167.5°	1148.1	1142.9	1145.6	1151.4	1143.8
170°	1155.6	1150.6	1152.2	1158.1	1150.6
172.5°	1160.6	1155.6	1157.4	1163.2	1155.6
175°	1164.8	1158.9	1160.6	1166.5	1158.1
177.5°	1166.5	1160.6	1161.5	1167.4	1159.9
180°	1162.4	1162.4	1162.4	1162.4	1162.4

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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	9.55	10.51	10.41	11.39	12.51	9.11	10.07	9.98	10.96	12.08
	3H	11.21	12.08	12.09	12.97	14.12	10.74	11.60	11.62	12.50	13.65
	4H	11.81	12.62	12.70	13.52	14.68	11.33	12.15	12.23	13.05	14.21
	6H	12.21	12.96	13.12	13.87	15.04	11.74	12.49	12.64	13.40	14.57
	8H	12.32	13.04	13.23	13.96	15.13	11.85	12.56	12.76	13.49	14.66
	12H	12.37	13.05	13.29	13.97	15.17	11.89	12.57	12.81	13.49	14.69
4H	2H	10.02	10.83	10.92	11.74	12.89	9.68	10.49	10.57	11.39	12.55
	3H	11.90	12.58	12.81	13.51	14.68	11.50	12.18	12.41	13.12	14.29
	4H	12.62	13.24	13.54	14.16	15.36	12.21	12.83	13.13	13.76	14.96
	6H	13.14	13.67	14.07	14.63	15.82	12.73	13.26	13.66	14.22	15.41
	8H	13.29	13.79	14.23	14.74	15.95	12.88	13.38	13.81	14.32	15.54
	12H	13.37	13.82	14.32	14.78	16.00	12.95	13.40	13.90	14.36	15.58
8H	4H	12.82	13.32	13.76	14.27	15.48	12.46	12.96	13.40	13.91	15.12
	6H	13.46	13.87	14.42	14.86	16.07	13.09	13.51	14.06	14.50	15.71
	8H	13.68	14.05	14.65	15.02	16.25	13.31	13.68	14.28	14.66	15.88
	12H	13.82	14.14	14.79	15.11	16.39	13.43	13.75	14.41	14.73	16.00
12H	4H	12.81	13.26	13.77	14.23	15.44	12.46	12.91	13.42	13.87	15.09
	6H	13.49	13.85	14.46	14.83	16.06	13.14	13.50	14.11	14.48	15.71
	8H	13.74	14.06	14.71	15.03	16.31	13.38	13.70	14.35	14.67	15.95