

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: P927592

Luminaire Tested: DFN2DIP-HX4F0-060D040US840-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927592
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-HX4F0-060D040US840-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

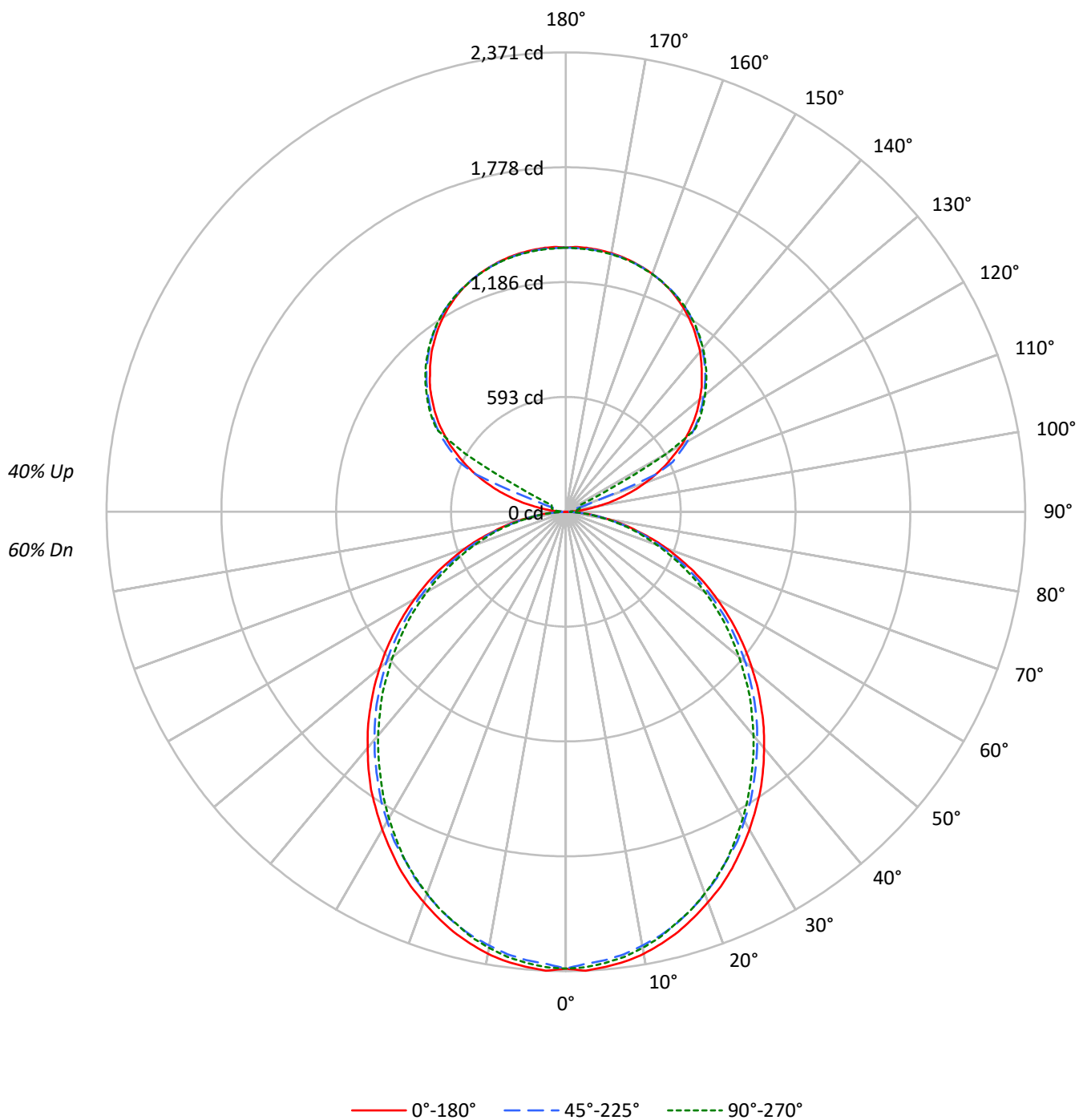
Lumens per Lamp: N/A
Luminaire Lumens: 9997.0 lumens
Efficiency: N/A
Efficacy: 118.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

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°	1753	1753	1753
5°	1756	1729	1740
10°	1742	1706	1717
15°	1716	1678	1680
20°	1682	1639	1643
25°	1648	1592	1599
30°	1605	1549	1544
35°	1564	1498	1485
40°	1514	1447	1429
45°	1464	1395	1372
50°	1409	1341	1306
55°	1352	1278	1246
60°	1287	1204	1176
65°	1217	1127	1094
70°	1127	1033	1006
75°	1002	920	925
80°	853	777	770
85°	619	529	512

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1464 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.9	2.2
10°-20°	624.3	6.2
20°-30°	917.5	9.2
30°-40°	1065.6	10.7
40°-50°	1064.3	10.6
50°-60°	928.0	9.3
60°-70°	686.0	6.9
70°-80°	388.1	3.9
80°-90°	104.8	1.0
90°-100°	44.9	0.4
100°-110°	167.6	1.7
110°-120°	444.4	4.4
120°-130°	737.1	7.4
130°-140°	783.0	7.8
140°-150°	727.7	7.3
150°-160°	585.0	5.9
160°-170°	377.0	3.8
170°-180°	129.8	1.3
0°-30°	1763.7	17.6
0°-40°	2829.3	28.3
0°-60°	4821.6	48.2
0°-90°	6000.6	60.0
90°-120°	656.9	6.6
90°-150°	2904.6	29.1
90°-180°	3996.0	40.0
0°-180°	9997.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2358	2358	2358	2358	2358	
5°	2358	2349	2324	2342	2337	224
15°	2244	2231	2201	2210	2199	632
25°	2031	2013	1975	1979	1975	935
35°	1752	1730	1693	1680	1668	1094
45°	1426	1410	1376	1351	1342	1101
55°	1079	1065	1038	1011	1000	965
65°	728	714	692	671	660	720
75°	381	376	365	351	356	406
85°	93	91	88	82	79	104
90°	1	12	20	25	27	9
95°	64	32	38	43	42	76
105°	300	330	60	71	75	320
115°	567	584	609	152	81	558
125°	802	815	834	840	843	715
135°	992	1008	1017	1027	1025	767
145°	1151	1150	1167	1174	1169	720
155°	1268	1259	1270	1276	1268	584
165°	1336	1330	1333	1340	1333	377
175°	1366	1359	1361	1368	1358	130
180°	1363	1363	1363	1363	1363	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2357.5	2357.5	2357.5	2357.5	2357.5
2.5°	2371.2	2359.9	2334.9	2357.5	2353.1
5°	2357.5	2348.6	2323.5	2341.6	2337.3
7.5°	2341.6	2328.2	2303.2	2321.4	2316.9
10°	2316.9	2301.0	2273.8	2291.8	2285.1
12.5°	2282.8	2269.2	2242.1	2253.4	2248.8
15°	2244.2	2230.7	2201.2	2210.4	2199.0
17.5°	2196.6	2183.2	2153.6	2164.8	2153.6
20°	2144.4	2131.0	2099.2	2105.9	2097.1
22.5°	2092.5	2072.0	2042.4	2042.4	2037.9
25°	2031.1	2013.1	1974.6	1978.9	1974.6
27.5°	1963.1	1947.2	1917.8	1911.1	1899.8
30°	1895.3	1876.9	1843.1	1836.3	1827.1
32.5°	1822.6	1809.2	1772.8	1759.1	1750.0
35°	1752.4	1729.8	1693.4	1679.7	1668.4
37.5°	1673.0	1652.5	1616.3	1600.3	1589.0
40°	1591.4	1573.2	1536.9	1516.7	1507.5
42.5°	1512.1	1493.8	1457.7	1434.9	1421.4
45°	1426.0	1410.1	1376.0	1351.2	1342.0
47.5°	1342.0	1326.2	1289.9	1264.9	1251.3
50°	1253.6	1242.3	1210.5	1178.7	1167.4
52.5°	1167.4	1151.6	1122.2	1097.2	1081.4
55°	1079.2	1065.4	1038.3	1011.1	999.8
57.5°	990.7	979.4	949.8	922.7	913.5
60°	902.2	893.3	861.6	836.5	829.8
62.5°	816.0	800.2	777.5	754.9	745.8
65°	727.8	714.1	691.5	671.0	659.7
67.5°	637.1	625.6	605.4	589.5	580.3
70°	553.2	544.1	523.6	507.7	498.8
72.5°	467.0	457.9	446.6	430.8	424.0
75°	380.7	376.5	364.8	351.4	356.0
77.5°	303.7	294.7	290.0	283.3	276.6
80°	226.8	224.4	219.8	213.1	208.5
82.5°	154.2	154.2	152.0	142.9	142.9
85°	92.8	90.7	88.5	81.5	79.4
87.5°	40.9	36.4	31.7	25.0	22.6
90°	0.9	11.8	19.7	24.7	26.6
92.5°	24.7	20.7	23.6	25.6	26.6
95°	64.0	31.5	38.4	43.4	42.4
97.5°	115.4	34.5	50.3	53.3	54.2
100°	174.6	39.5	56.2	64.0	66.0
102.5°	239.6	237.8	58.2	69.0	72.0
105°	299.8	329.5	60.2	71.0	74.9
107.5°	369.9	394.5	62.2	73.0	76.9
110°	437.0	457.6	172.7	74.0	77.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	500.2	517.8	501.1	75.9	79.0
115°	567.1	583.9	608.6	151.9	81.0
117.5°	625.4	645.1	661.9	520.8	262.3
120°	690.5	705.2	723.0	734.9	601.7
122.5°	745.6	761.5	781.3	787.1	788.1
125°	801.9	814.8	833.5	840.5	843.4
127.5°	853.2	867.0	881.9	891.8	892.7
130°	901.5	917.4	928.1	939.0	938.1
132.5°	950.8	963.8	974.6	983.4	982.5
135°	992.3	1008.2	1017.0	1026.9	1024.9
137.5°	1035.7	1047.5	1057.5	1067.3	1064.3
140°	1078.1	1086.0	1096.8	1105.7	1100.8
142.5°	1113.7	1120.6	1133.4	1141.2	1136.3
145°	1151.2	1150.2	1166.8	1173.8	1168.8
147.5°	1183.6	1180.7	1197.4	1202.4	1198.5
150°	1215.2	1208.3	1224.2	1230.0	1225.1
152.5°	1241.9	1234.0	1248.7	1254.7	1247.8
155°	1267.5	1258.7	1270.5	1276.4	1268.5
157.5°	1288.2	1280.3	1289.3	1296.2	1288.2
160°	1306.0	1300.0	1306.0	1311.8	1305.0
162.5°	1321.7	1315.9	1320.8	1327.7	1318.8
165°	1335.6	1329.7	1332.6	1339.5	1332.6
167.5°	1346.5	1340.4	1343.5	1350.4	1341.5
170°	1355.4	1349.4	1351.3	1358.3	1349.4
172.5°	1361.2	1355.4	1357.4	1364.2	1355.4
175°	1366.1	1359.2	1361.2	1368.1	1358.3
177.5°	1368.1	1361.2	1362.2	1369.2	1360.3
180°	1363.2	1363.2	1363.2	1363.2	1363.2

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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	10.10	11.06	10.97	11.95	13.07	9.67	10.63	10.53	11.52	12.64
	3H	11.77	12.63	12.65	13.53	14.67	11.30	12.16	12.17	13.05	14.20
	4H	12.36	13.17	13.26	14.08	15.23	11.89	12.70	12.78	13.60	14.76
	6H	12.77	13.52	13.67	14.43	15.60	12.29	13.04	13.20	13.95	15.12
	8H	12.87	13.59	13.79	14.52	15.69	12.40	13.11	13.31	14.04	15.21
	12H	12.93	13.61	13.85	14.53	15.72	12.45	13.13	13.37	14.05	15.24
4H	2H	10.57	11.39	11.47	12.29	13.45	10.23	11.04	11.13	11.95	13.10
	3H	12.45	13.13	13.36	14.06	15.24	12.06	12.74	12.97	13.67	14.84
	4H	13.17	13.79	14.09	14.72	15.92	12.76	13.38	13.68	14.31	15.51
	6H	13.69	14.23	14.63	15.18	16.38	13.28	13.82	14.22	14.77	15.97
	8H	13.84	14.34	14.78	15.29	16.50	13.43	13.93	14.37	14.88	16.09
	12H	13.92	14.37	14.88	15.34	16.56	13.50	13.95	14.46	14.92	16.13
8H	4H	13.37	13.87	14.31	14.82	16.03	13.01	13.51	13.95	14.46	15.67
	6H	14.01	14.43	14.97	15.41	16.62	13.65	14.06	14.61	15.05	16.26
	8H	14.23	14.60	15.21	15.58	16.81	13.86	14.23	14.84	15.21	16.44
	12H	14.37	14.69	15.35	15.66	16.94	13.99	14.31	14.96	15.28	16.56
12H	4H	13.36	13.82	14.32	14.78	16.00	13.01	13.46	13.97	14.43	15.65
	6H	14.04	14.41	15.01	15.39	16.62	13.69	14.06	14.66	15.04	16.26
	8H	14.29	14.61	15.27	15.58	16.86	13.93	14.25	14.91	15.23	16.50