

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: P927528

Luminaire Tested: DFN2DIP-HX4F0-040D060US840-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927528
REPORT IS A COMBINATION OF REPORTS P900855 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D060US840-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

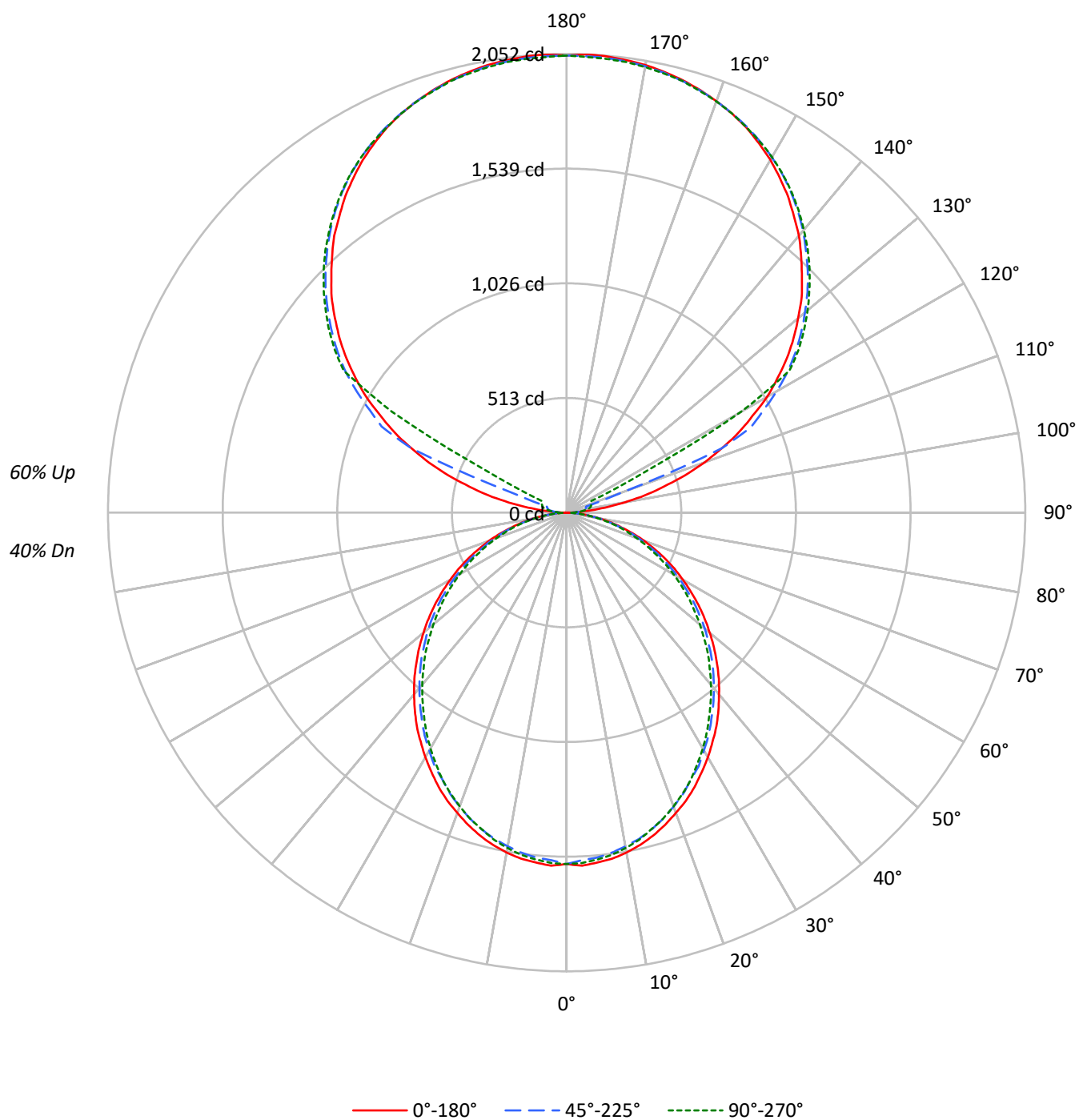
Lumens per Lamp: N/A
Luminaire Lumens: 9997.0 lumens
Efficiency: N/A
Efficacy: 129.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 77.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
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	50	30	10
RCR																				
0	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47			40
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40			34
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33			28
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28			24
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24			21
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21			18
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19			16
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17			14
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15			12
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13			11
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12			10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1169	1169	1169
5°	1171	1152	1160
10°	1161	1137	1145
15°	1144	1118	1120
20°	1121	1093	1095
25°	1098	1062	1066
30°	1070	1033	1029
35°	1043	999	990
40°	1009	964	953
45°	976	930	915
50°	939	894	871
55°	901	852	831
60°	858	802	784
65°	811	751	730
70°	751	688	671
75°	668	614	617
80°	569	518	513
85°	413	353	341

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1051 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.9	1.5
10°-20°	416.2	4.2
20°-30°	611.7	6.1
30°-40°	710.4	7.1
40°-50°	709.5	7.1
50°-60°	618.7	6.2
60°-70°	457.3	4.6
70°-80°	258.8	2.6
80°-90°	71.9	0.7
90°-100°	67.4	0.7
100°-110°	251.3	2.5
110°-120°	666.6	6.7
120°-130°	1105.6	11.1
130°-140°	1174.4	11.7
140°-150°	1091.5	10.9
150°-160°	877.5	8.8
160°-170°	565.5	5.7
170°-180°	194.6	1.9
0°-30°	1175.8	11.8
0°-40°	1886.2	18.9
0°-60°	3214.4	32.2
0°-90°	4002.4	40.0
90°-120°	985.4	9.9
90°-150°	4357.0	43.6
90°-180°	5995.0	60.0
0°-180°	9997.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1572	1572	1572	1572	1572	
5°	1572	1566	1549	1561	1558	149
15°	1496	1487	1467	1474	1466	421
25°	1354	1342	1316	1319	1316	623
35°	1168	1153	1129	1120	1112	730
45°	951	940	917	901	895	734
55°	720	710	692	674	667	643
65°	485	476	461	447	440	480
75°	254	251	243	234	237	271
85°	62	60	59	54	53	69
90°	1	18	30	37	40	9
95°	96	47	58	65	64	114
105°	450	494	90	106	112	481
115°	851	876	913	228	121	838
125°	1203	1222	1250	1261	1265	1073
135°	1488	1512	1525	1540	1537	1150
145°	1727	1725	1750	1761	1753	1080
155°	1901	1888	1906	1915	1903	876
165°	2003	1995	1999	2009	1999	566
175°	2049	2039	2042	2052	2037	195
180°	2045	2045	2045	2045	2045	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1571.7	1571.7	1571.7	1571.7	1571.7
2.5°	1580.8	1573.3	1556.6	1571.7	1568.8
5°	1571.7	1565.7	1549.0	1561.0	1558.2
7.5°	1561.0	1552.1	1535.4	1547.6	1544.6
10°	1544.6	1534.0	1515.9	1527.9	1523.4
12.5°	1521.8	1512.8	1494.7	1502.3	1499.1
15°	1496.1	1487.1	1467.4	1473.5	1466.0
17.5°	1464.4	1455.4	1435.7	1443.2	1435.7
20°	1429.6	1420.6	1399.5	1403.9	1398.1
22.5°	1394.9	1381.3	1361.6	1361.6	1358.6
25°	1354.0	1342.0	1316.4	1319.3	1316.4
27.5°	1308.7	1298.1	1278.6	1274.1	1266.6
30°	1263.5	1251.3	1228.7	1224.2	1218.1
32.5°	1215.1	1206.1	1181.9	1172.8	1166.6
35°	1168.2	1153.2	1129.0	1119.9	1112.3
37.5°	1115.3	1101.7	1077.5	1067.0	1059.4
40°	1061.0	1048.8	1024.5	1011.1	1005.1
42.5°	1008.1	995.9	971.8	956.6	947.6
45°	950.6	940.1	917.3	900.8	894.7
47.5°	894.7	884.1	859.9	843.3	834.3
50°	835.7	828.1	807.0	785.8	778.3
52.5°	778.3	767.8	748.2	731.5	720.9
55°	719.5	710.3	692.2	674.0	666.6
57.5°	660.4	652.9	633.1	615.1	609.0
60°	601.4	595.5	574.4	557.7	553.2
62.5°	544.1	533.5	518.4	503.3	497.2
65°	485.2	476.0	461.0	447.3	439.9
67.5°	424.7	417.0	403.6	393.0	387.0
70°	368.8	362.7	349.1	338.5	332.5
72.5°	311.4	305.3	297.8	287.2	282.6
75°	253.9	250.9	243.3	234.3	237.3
77.5°	202.5	196.4	193.4	188.8	184.4
80°	151.2	149.6	146.5	142.1	139.0
82.5°	102.8	102.8	101.4	95.2	95.2
85°	61.9	60.5	59.0	54.3	52.9
87.5°	27.3	24.2	21.2	16.7	15.0
90°	1.4	17.8	29.5	37.1	39.9
92.5°	37.1	31.1	35.4	38.5	39.9
95°	96.1	47.3	57.7	65.2	63.6
97.5°	173.1	51.8	75.3	80.0	81.4
100°	261.9	59.2	84.3	96.1	99.1
102.5°	359.5	356.7	87.3	103.5	108.0
105°	449.8	494.2	90.3	106.4	112.5
107.5°	554.9	591.7	93.3	109.5	115.4
110°	655.6	686.5	259.0	111.1	116.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	750.2	776.7	751.6	113.8	118.4
115°	850.8	875.9	913.0	227.9	121.4
117.5°	938.0	967.6	992.8	781.2	393.5
120°	1035.8	1057.9	1084.6	1102.3	902.6
122.5°	1118.5	1142.2	1171.9	1180.7	1182.3
125°	1202.9	1222.2	1250.2	1260.6	1265.0
127.5°	1279.8	1300.5	1322.8	1337.6	1339.0
130°	1352.3	1376.1	1392.2	1408.6	1407.2
132.5°	1426.3	1445.6	1461.8	1475.1	1473.7
135°	1488.5	1512.3	1525.4	1540.3	1537.3
137.5°	1553.5	1571.2	1586.2	1600.9	1596.6
140°	1617.1	1629.1	1645.3	1658.6	1651.2
142.5°	1670.5	1680.9	1700.1	1711.8	1704.4
145°	1726.8	1725.1	1750.3	1760.7	1753.3
147.5°	1775.4	1771.0	1796.1	1803.5	1797.7
150°	1822.9	1812.5	1836.2	1845.0	1837.6
152.5°	1862.8	1851.0	1873.1	1882.1	1871.7
155°	1901.3	1888.0	1905.8	1914.6	1902.8
157.5°	1932.4	1920.5	1933.9	1944.3	1932.4
160°	1959.0	1950.0	1959.0	1967.8	1957.5
162.5°	1982.5	1973.8	1981.1	1991.5	1978.2
165°	2003.3	1994.6	1998.9	2009.3	1998.9
167.5°	2019.6	2010.7	2015.3	2025.7	2012.2
170°	2033.0	2024.0	2027.1	2037.4	2024.0
172.5°	2041.8	2033.0	2036.0	2046.4	2033.0
175°	2049.2	2038.8	2041.8	2052.1	2037.4
177.5°	2052.1	2041.8	2043.3	2053.7	2040.4
180°	2044.7	2044.7	2044.7	2044.7	2044.7

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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	6.82	7.60	7.86	8.64	10.05	6.39	7.16	7.42	8.21	9.61
	3H	8.47	9.17	9.52	10.22	11.65	8.00	8.70	9.05	9.75	11.18
	4H	9.06	9.72	10.12	10.77	12.21	8.58	9.24	9.64	10.30	11.73
	6H	9.45	10.06	10.52	11.12	12.57	8.98	9.59	10.05	10.64	12.09
	8H	9.56	10.13	10.63	11.21	12.65	9.08	9.66	10.15	10.73	12.17
	12H	9.60	10.15	10.68	11.22	12.68	9.12	9.67	10.20	10.74	12.20
4H	2H	7.27	7.93	8.34	8.99	10.42	6.92	7.59	7.99	8.64	10.07
	3H	9.13	9.68	10.20	10.76	12.21	8.74	9.29	9.81	10.37	11.82
	4H	9.84	10.35	10.92	11.42	12.89	9.43	9.94	10.51	11.01	12.48
	6H	10.35	10.79	11.44	11.88	13.34	9.94	10.38	11.03	11.47	12.93
	8H	10.50	10.91	11.59	11.99	13.47	10.09	10.49	11.18	11.58	13.06
	12H	10.57	10.94	11.68	12.04	13.52	10.15	10.51	11.25	11.62	13.10
8H	4H	10.03	10.44	11.12	11.53	13.00	9.67	10.08	10.76	11.17	12.64
	6H	10.66	11.00	11.77	12.13	13.60	10.30	10.63	11.41	11.76	13.24
	8H	10.88	11.17	12.00	12.29	13.78	10.51	10.81	11.63	11.92	13.41
	12H	11.01	11.27	12.13	12.38	13.91	10.62	10.88	11.75	11.99	13.52
12H	4H	10.01	10.38	11.12	11.48	12.96	9.66	10.03	10.77	11.13	12.61
	6H	10.69	10.98	11.81	12.10	13.59	10.34	10.63	11.46	11.74	13.24
	8H	10.93	11.19	12.05	12.30	13.83	10.57	10.83	11.69	11.94	13.47