

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: P908031

Luminaire Tested: DFN2DIP-HX3F0-050D050US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908031
REPORT IS A COMBINATION OF REPORTS P900753 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-050D050US840-FLLONL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

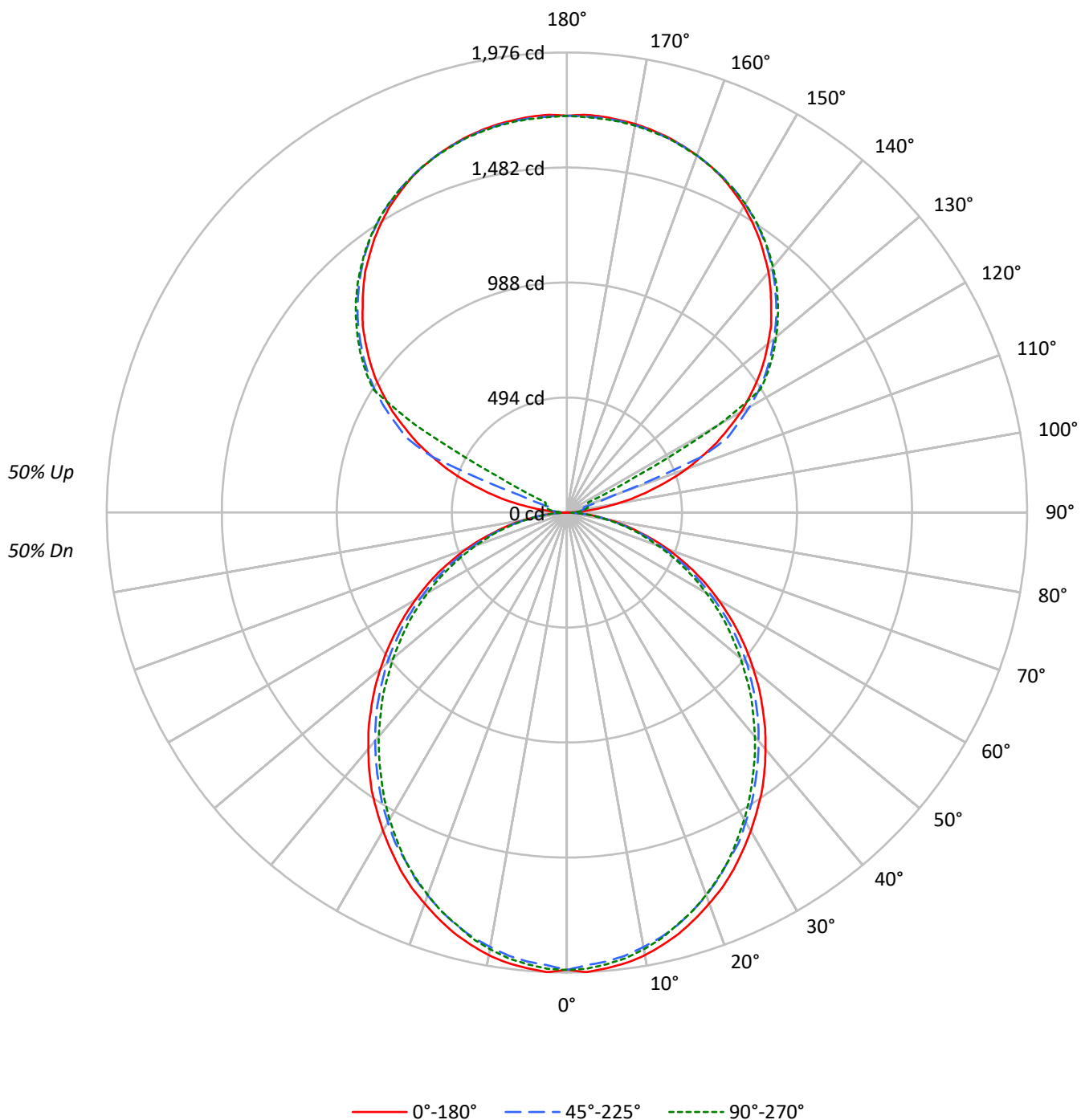
Lumens per Lamp: N/A
Luminaire Lumens: 9997.7 lumens
Efficiency: N/A
Efficacy: 122.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 81.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47	47	47	42
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40	40	40	35
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34	34	34	30
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29	29	29	26
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26	26	26	22
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23	23	23	20
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20	20	20	17
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18	18	18	16
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16	16	16	14
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15	15	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2276	2276	2276
5°	2278	2242	2258
10°	2259	2211	2226
15°	2225	2173	2177
20°	2179	2121	2127
25°	2133	2059	2069
30°	2076	2001	1996
35°	2022	1933	1919
40°	1956	1864	1845
45°	1889	1795	1770
50°	1817	1723	1683
55°	1740	1639	1602
60°	1654	1539	1510
65°	1560	1436	1401
70°	1440	1311	1284
75°	1275	1160	1173
80°	1075	967	966
85°	763	640	626

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1889 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.9	1.8
10°-20°	520.3	5.2
20°-30°	764.6	7.6
30°-40°	888.1	8.9
40°-50°	887.0	8.9
50°-60°	773.4	7.7
60°-70°	571.7	5.7
70°-80°	323.5	3.2
80°-90°	88.4	0.9
90°-100°	56.2	0.6
100°-110°	209.5	2.1
110°-120°	555.6	5.6
120°-130°	921.4	9.2
130°-140°	978.8	9.8
140°-150°	909.7	9.1
150°-160°	731.3	7.3
160°-170°	471.2	4.7
170°-180°	162.2	1.6
0°-30°	1469.8	14.7
0°-40°	2357.9	23.6
0°-60°	4018.3	40.2
0°-90°	5001.8	50.0
90°-120°	821.2	8.2
90°-150°	3631.1	36.3
90°-180°	4996.0	50.0
0°-180°	9997.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1965	1965	1965	1965	1965	
5°	1965	1957	1936	1952	1948	187
15°	1870	1859	1834	1842	1833	527
25°	1693	1678	1646	1649	1646	779
35°	1460	1442	1411	1400	1390	912
45°	1188	1175	1147	1126	1118	917
55°	899	888	865	843	833	804
65°	606	595	576	559	550	600
75°	317	314	304	293	297	339
85°	77	76	74	68	66	86
90°	1	15	25	31	33	9
95°	80	39	48	54	53	95
105°	375	412	75	89	94	401
115°	709	730	761	190	101	698
125°	1002	1019	1042	1051	1054	894
135°	1240	1260	1271	1284	1281	958
145°	1439	1438	1459	1467	1461	900
155°	1584	1574	1588	1596	1586	730
165°	1670	1662	1666	1674	1666	472
175°	1708	1699	1702	1710	1698	163
180°	1704	1704	1704	1704	1704	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1964.7	1964.7	1964.7	1964.7	1964.7
2.5°	1976.1	1966.7	1945.9	1964.7	1961.2
5°	1964.7	1957.3	1936.4	1951.5	1947.9
7.5°	1951.5	1940.3	1919.5	1934.7	1930.9
10°	1930.9	1917.6	1895.0	1910.0	1904.4
12.5°	1902.4	1891.2	1868.6	1877.9	1874.1
15°	1870.3	1859.1	1834.4	1842.1	1832.6
17.5°	1830.6	1819.4	1794.7	1804.1	1794.7
20°	1787.2	1775.9	1749.5	1755.0	1747.7
22.5°	1743.8	1726.8	1702.1	1702.1	1698.3
25°	1692.7	1677.7	1645.6	1649.2	1645.6
27.5°	1636.0	1622.8	1598.3	1592.7	1583.3
30°	1579.4	1564.3	1536.0	1530.4	1522.8
32.5°	1518.9	1507.7	1477.4	1466.0	1458.4
35°	1460.4	1441.6	1411.3	1399.9	1390.5
37.5°	1394.2	1377.3	1347.0	1333.7	1324.3
40°	1326.4	1311.1	1280.8	1263.9	1256.4
42.5°	1260.2	1245.0	1214.9	1195.8	1184.6
45°	1188.4	1175.2	1146.7	1126.1	1118.4
47.5°	1118.4	1105.2	1075.0	1054.1	1042.9
50°	1044.7	1035.3	1008.9	982.4	972.9
52.5°	972.9	959.7	935.2	914.4	901.2
55°	899.4	888.0	865.3	842.6	833.2
57.5°	825.6	816.2	791.5	768.9	761.2
60°	751.8	744.5	718.0	697.1	691.6
62.5°	680.1	666.9	648.0	629.1	621.6
65°	606.5	595.1	576.2	559.3	549.8
67.5°	531.0	521.4	504.5	491.3	483.6
70°	461.0	453.4	436.4	423.1	415.8
72.5°	389.3	381.6	372.2	359.0	353.4
75°	317.3	313.7	304.1	292.9	296.7
77.5°	253.2	245.5	241.8	236.1	230.6
80°	189.0	187.0	183.2	177.6	173.8
82.5°	128.5	128.5	126.6	119.1	119.1
85°	77.4	75.5	73.7	68.0	66.1
87.5°	34.0	30.3	26.5	20.8	18.9
90°	1.2	14.7	24.6	30.9	33.2
92.5°	30.9	26.0	29.6	32.1	33.2
95°	80.1	39.4	48.1	54.3	53.0
97.5°	144.2	43.2	62.8	66.7	67.8
100°	218.3	49.4	70.3	80.1	82.6
102.5°	299.6	297.2	72.8	86.2	90.1
105°	374.9	411.9	75.2	88.8	93.7
107.5°	462.4	493.1	77.8	91.2	96.2
110°	546.3	572.1	215.8	92.5	97.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	625.2	647.3	626.4	94.9	98.7
115°	709.0	729.9	760.8	190.0	101.2
117.5°	781.7	806.4	827.5	651.0	328.0
120°	863.1	881.6	903.8	918.7	752.1
122.5°	932.1	951.9	976.6	984.0	985.3
125°	1002.4	1018.6	1042.0	1050.6	1054.3
127.5°	1066.5	1083.8	1102.5	1114.7	1115.9
130°	1127.0	1146.8	1160.2	1173.9	1172.8
132.5°	1188.7	1204.8	1218.2	1229.4	1228.2
135°	1240.5	1260.3	1271.2	1283.7	1281.2
137.5°	1294.6	1309.5	1321.9	1334.2	1330.6
140°	1347.7	1357.7	1371.1	1382.2	1376.1
142.5°	1392.2	1400.9	1416.8	1426.6	1420.5
145°	1439.1	1437.7	1458.6	1467.3	1461.2
147.5°	1479.7	1475.9	1496.9	1503.1	1498.2
150°	1519.1	1510.6	1530.2	1537.6	1531.5
152.5°	1552.4	1542.6	1561.1	1568.5	1559.8
155°	1584.5	1573.5	1588.2	1595.6	1585.8
157.5°	1610.3	1600.5	1611.6	1620.3	1610.3
160°	1632.6	1625.2	1632.6	1639.9	1631.3
162.5°	1652.2	1645.0	1651.0	1659.7	1648.6
165°	1669.5	1662.2	1665.9	1674.5	1665.9
167.5°	1683.1	1675.7	1679.5	1688.1	1677.0
170°	1694.3	1686.8	1689.3	1697.9	1686.8
172.5°	1701.6	1694.3	1696.8	1705.4	1694.3
175°	1707.8	1699.1	1701.6	1710.2	1697.9
177.5°	1710.2	1701.6	1702.9	1711.5	1700.4
180°	1704.0	1704.0	1704.0	1704.0	1704.0



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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	10.95	11.05	11.92	13.19	9.66	10.52	10.62	11.49	12.76
	3H	11.74	12.51	12.71	13.50	14.79	11.27	12.04	12.24	13.03	14.32
	4H	12.32	13.06	13.31	14.04	15.34	11.85	12.59	12.84	13.57	14.87
	6H	12.72	13.39	13.71	14.38	15.70	12.25	12.92	13.24	13.91	15.23
	8H	12.82	13.46	13.82	14.47	15.78	12.35	12.99	13.35	14.00	15.31
	12H	12.86	13.48	13.87	14.48	15.81	12.39	13.00	13.39	14.00	15.34
4H	2H	10.55	11.28	11.53	12.26	13.57	10.20	10.94	11.19	11.92	13.22
	3H	12.40	13.01	13.40	14.03	15.34	12.01	12.62	13.01	13.64	14.95
	4H	13.11	13.67	14.12	14.68	16.02	12.71	13.27	13.72	14.28	15.62
	6H	13.62	14.10	14.64	15.13	16.47	13.22	13.70	14.23	14.73	16.06
	8H	13.77	14.22	14.78	15.24	16.59	13.36	13.81	14.38	14.83	16.18
	12H	13.84	14.24	14.87	15.28	16.64	13.42	13.83	14.46	14.86	16.22
8H	4H	13.31	13.76	14.32	14.78	16.13	12.95	13.40	13.97	14.42	15.77
	6H	13.93	14.30	14.97	15.37	16.71	13.57	13.94	14.61	15.01	16.36
	8H	14.14	14.47	15.19	15.52	16.89	13.78	14.11	14.83	15.16	16.52
	12H	14.27	14.56	15.32	15.60	17.01	13.89	14.18	14.95	15.22	16.64
12H	4H	13.29	13.70	14.33	14.74	16.09	12.94	13.35	13.98	14.39	15.74
	6H	13.96	14.28	15.01	15.34	16.70	13.61	13.94	14.66	14.99	16.35
	8H	14.19	14.48	15.25	15.53	16.94	13.84	14.13	14.89	15.17	16.58