

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: P928256

Luminaire Tested: DFN2DIP-HX4F0-060D080US927-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928256
REPORT IS A COMBINATION OF REPORTS P900895 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D080US927-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

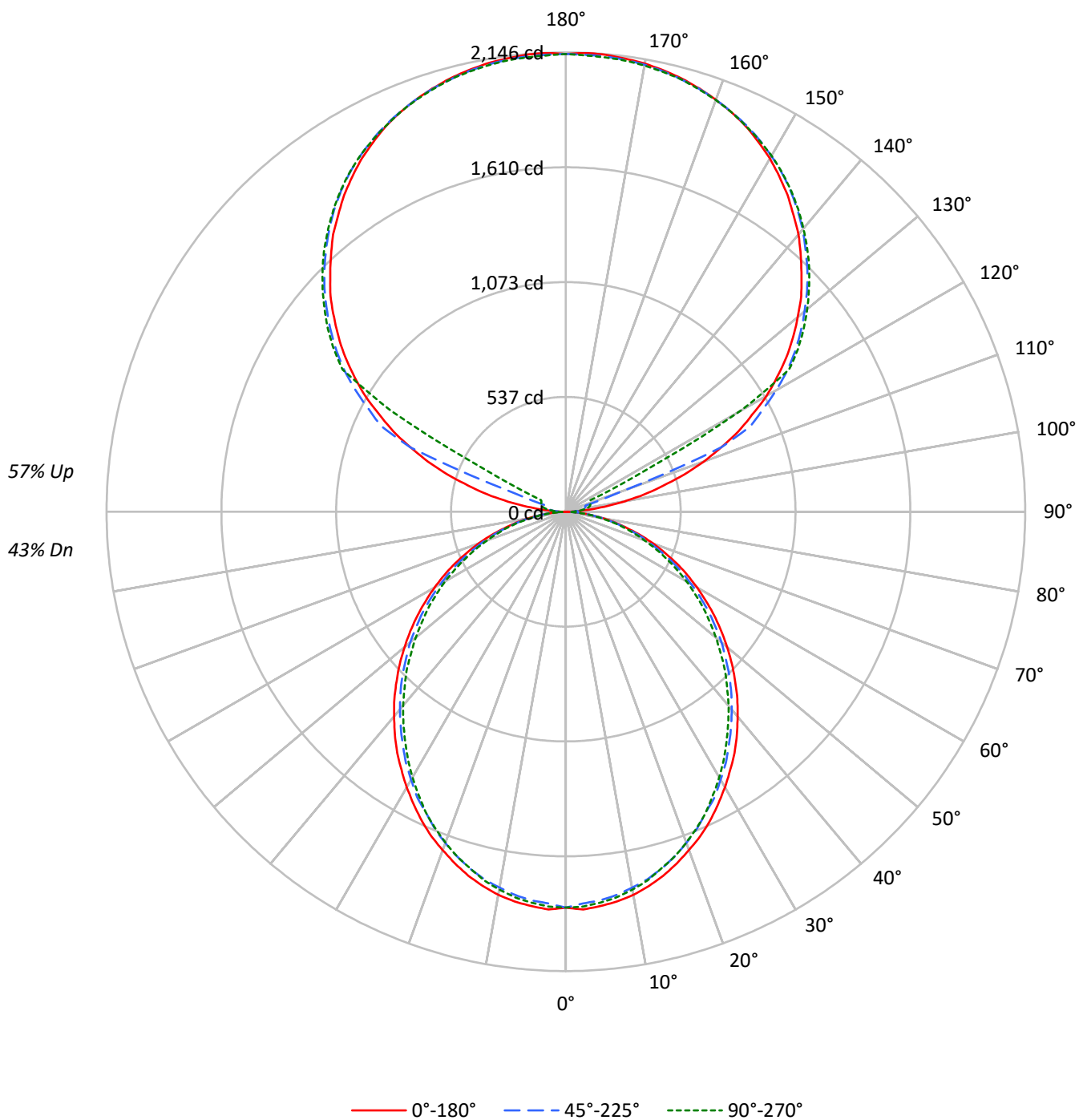
Lumens per Lamp: N/A
Luminaire Lumens: 10977.1 lumens
Efficiency: N/A
Efficacy: 97.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 112.5
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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	50	50	50
1	96	92	88	85	88	84	81	78	70	67	65	56	55	53	44	43	42
2	88	80	74	69	80	74	68	64	61	57	54	49	47	44	39	37	35
3	80	71	63	58	73	65	58	53	54	49	45	44	40	38	34	32	30
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	31	28	26
5	67	56	48	42	61	51	44	39	43	37	33	35	31	28	28	25	23
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	32	52	41	34	29	35	29	25	29	25	22	23	20	18
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1375	1375	1375
5°	1377	1356	1365
10°	1366	1338	1346
15°	1346	1316	1318
20°	1319	1285	1288
25°	1292	1249	1254
30°	1259	1215	1211
35°	1227	1175	1165
40°	1187	1135	1121
45°	1148	1094	1076
50°	1105	1052	1025
55°	1060	1002	977
60°	1010	944	923
65°	954	884	858
70°	884	810	789
75°	786	722	726
80°	669	609	603
85°	485	415	402

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1148 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	174.0	1.6
10°-20°	489.7	4.5
20°-30°	719.6	6.6
30°-40°	835.8	7.6
40°-50°	834.7	7.6
50°-60°	727.9	6.6
60°-70°	538.1	4.9
70°-80°	304.4	2.8
80°-90°	84.1	0.8
90°-100°	70.5	0.6
100°-110°	262.9	2.4
110°-120°	697.1	6.4
120°-130°	1156.2	10.5
130°-140°	1228.2	11.2
140°-150°	1141.5	10.4
150°-160°	917.7	8.4
160°-170°	591.3	5.4
170°-180°	203.5	1.9
0°-30°	1383.3	12.6
0°-40°	2219.1	20.2
0°-60°	3781.7	34.5
0°-90°	4708.2	42.9
90°-120°	1030.5	9.4
90°-150°	4556.4	41.5
90°-180°	6269.0	57.1
0°-180°	10977.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1849	1849	1849	1849	1849	
5°	1849	1842	1822	1837	1833	176
15°	1760	1750	1726	1734	1725	496
25°	1593	1579	1549	1552	1549	733
35°	1374	1357	1328	1317	1308	858
45°	1118	1106	1079	1060	1053	863
55°	846	836	814	793	784	757
65°	571	560	542	526	517	564
75°	299	295	286	276	279	319
85°	73	71	69	64	62	81
90°	2	18	31	39	42	10
95°	100	49	60	68	66	119
105°	470	517	94	111	118	503
115°	890	916	955	238	127	876
125°	1258	1278	1307	1318	1323	1122
135°	1557	1581	1595	1611	1608	1202
145°	1806	1804	1830	1841	1834	1129
155°	1988	1974	1993	2002	1990	916
165°	2095	2086	2090	2101	2090	592
175°	2143	2132	2135	2146	2131	204
180°	2138	2138	2138	2138	2138	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1849.0	1849.0	1849.0	1849.0	1849.0
2.5°	1859.8	1850.9	1831.3	1849.0	1845.6
5°	1849.0	1842.0	1822.4	1836.6	1833.2
7.5°	1836.6	1826.0	1806.4	1820.7	1817.2
10°	1817.2	1804.7	1783.3	1797.5	1792.2
12.5°	1790.4	1779.8	1758.5	1767.3	1763.8
15°	1760.1	1749.6	1726.4	1733.6	1724.7
17.5°	1722.8	1712.3	1689.1	1697.9	1689.1
20°	1681.9	1671.4	1646.4	1651.7	1644.7
22.5°	1641.2	1625.1	1601.9	1601.9	1598.3
25°	1593.0	1578.9	1548.7	1552.1	1548.7
27.5°	1539.6	1527.2	1504.2	1498.9	1490.1
30°	1486.5	1472.1	1445.6	1440.3	1433.0
32.5°	1429.5	1418.9	1390.4	1379.7	1372.5
35°	1374.4	1356.7	1328.2	1317.4	1308.5
37.5°	1312.2	1296.1	1267.7	1255.2	1246.3
40°	1248.2	1233.9	1205.4	1189.6	1182.4
42.5°	1185.9	1171.6	1143.3	1125.4	1114.8
45°	1118.5	1105.9	1079.2	1059.8	1052.6
47.5°	1052.6	1040.1	1011.7	992.1	981.4
50°	983.2	974.3	949.4	924.5	915.6
52.5°	915.6	903.2	880.1	860.6	848.2
55°	846.4	835.6	814.3	793.0	784.2
57.5°	777.0	768.2	745.0	723.7	716.4
60°	707.6	700.6	675.7	656.1	650.8
62.5°	640.0	627.6	609.8	592.1	585.0
65°	570.8	560.1	542.4	526.3	517.4
67.5°	499.7	490.6	474.8	462.4	455.2
70°	433.9	426.7	410.7	398.2	391.2
72.5°	366.3	359.2	350.3	337.9	332.6
75°	298.6	295.3	286.1	275.6	279.2
77.5°	238.2	231.1	227.5	222.2	216.9
80°	177.9	176.0	172.4	167.1	163.5
82.5°	120.9	120.9	119.2	112.1	112.1
85°	72.8	71.1	69.4	63.9	62.3
87.5°	32.1	28.5	24.9	19.6	17.7
90°	1.5	18.5	30.9	38.7	41.7
92.5°	38.7	32.6	37.1	40.2	41.7
95°	100.5	49.4	60.3	68.2	66.5
97.5°	181.0	54.2	78.8	83.6	85.1
100°	274.0	61.9	88.2	100.5	103.6
102.5°	376.0	373.0	91.3	108.2	113.0
105°	470.4	516.9	94.4	111.4	117.6
107.5°	580.2	618.8	97.6	114.4	120.7
110°	685.6	717.9	270.9	116.1	122.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	784.6	812.3	786.1	119.0	123.9
115°	889.7	915.9	954.7	238.3	127.0
117.5°	981.0	1011.9	1038.3	816.9	411.6
120°	1083.1	1106.3	1134.2	1152.8	943.8
122.5°	1169.6	1194.5	1225.5	1234.7	1236.4
125°	1257.9	1278.1	1307.4	1318.3	1322.9
127.5°	1338.3	1360.0	1383.4	1398.8	1400.3
130°	1414.2	1439.0	1455.9	1473.0	1471.5
132.5°	1491.6	1511.8	1528.7	1542.7	1541.2
135°	1556.6	1581.4	1595.2	1610.8	1607.7
137.5°	1624.6	1643.2	1658.8	1674.2	1669.6
140°	1691.1	1703.6	1720.5	1734.5	1726.7
142.5°	1747.0	1757.8	1777.8	1790.2	1782.4
145°	1805.8	1804.1	1830.4	1841.2	1833.5
147.5°	1856.7	1852.1	1878.3	1886.1	1880.0
150°	1906.3	1895.4	1920.2	1929.4	1921.7
152.5°	1948.0	1935.6	1958.8	1968.2	1957.3
155°	1988.2	1974.5	1993.0	2002.2	1989.9
157.5°	2020.7	2008.4	2022.4	2033.2	2020.7
160°	2048.7	2039.3	2048.7	2057.9	2047.0
162.5°	2073.3	2064.1	2071.8	2082.6	2068.7
165°	2095.0	2085.8	2090.4	2101.2	2090.4
167.5°	2112.0	2102.7	2107.4	2118.3	2104.3
170°	2126.0	2116.6	2119.8	2130.6	2116.6
172.5°	2135.2	2126.0	2129.1	2140.0	2126.0
175°	2142.9	2132.1	2135.2	2146.0	2130.6
177.5°	2146.0	2135.2	2136.8	2147.7	2133.7
180°	2138.3	2138.3	2138.3	2138.3	2138.3

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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	7.68	8.49	8.70	9.51	10.88	7.25	8.05	8.27	9.08	10.45
	3H	9.34	10.06	10.37	11.09	12.48	8.87	9.59	9.89	10.62	12.01
	4H	9.93	10.61	10.96	11.64	13.04	9.45	10.13	10.49	11.17	12.57
	6H	10.32	10.95	11.37	11.99	13.40	9.85	10.47	10.90	11.52	12.92
	8H	10.43	11.02	11.48	12.08	13.48	9.95	10.55	11.01	11.61	13.01
	12H	10.47	11.04	11.53	12.09	13.52	9.99	10.56	11.05	11.61	13.04
4H	2H	8.14	8.82	9.18	9.86	11.25	7.79	8.48	8.84	9.51	10.91
	3H	10.00	10.57	11.05	11.63	13.04	9.61	10.18	10.66	11.24	12.65
	4H	10.71	11.23	11.77	12.29	13.72	10.31	10.83	11.37	11.88	13.32
	6H	11.23	11.67	12.30	12.75	14.18	10.82	11.26	11.89	12.34	13.77
	8H	11.38	11.79	12.44	12.86	14.31	10.96	11.38	12.03	12.45	13.89
	12H	11.45	11.82	12.53	12.91	14.36	11.02	11.40	12.11	12.49	13.93
8H	4H	10.91	11.32	11.98	12.39	13.84	10.55	10.96	11.61	12.03	13.48
	6H	11.54	11.88	12.63	12.99	14.43	11.17	11.52	12.27	12.63	14.07
	8H	11.76	12.06	12.86	13.16	14.61	11.39	11.69	12.49	12.79	14.25
	12H	11.89	12.15	12.99	13.24	14.74	11.50	11.77	12.60	12.86	14.36
12H	4H	10.89	11.27	11.98	12.35	13.80	10.54	10.91	11.62	12.00	13.45
	6H	11.57	11.87	12.66	12.97	14.42	11.21	11.52	12.31	12.61	14.07
	8H	11.81	12.07	12.91	13.16	14.66	11.45	11.71	12.55	12.81	14.30