

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: P928252

Luminaire Tested: DFN2DIP-HX4F0-060D070US927-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928252
REPORT IS A COMBINATION OF REPORTS P900877 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D070US927-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

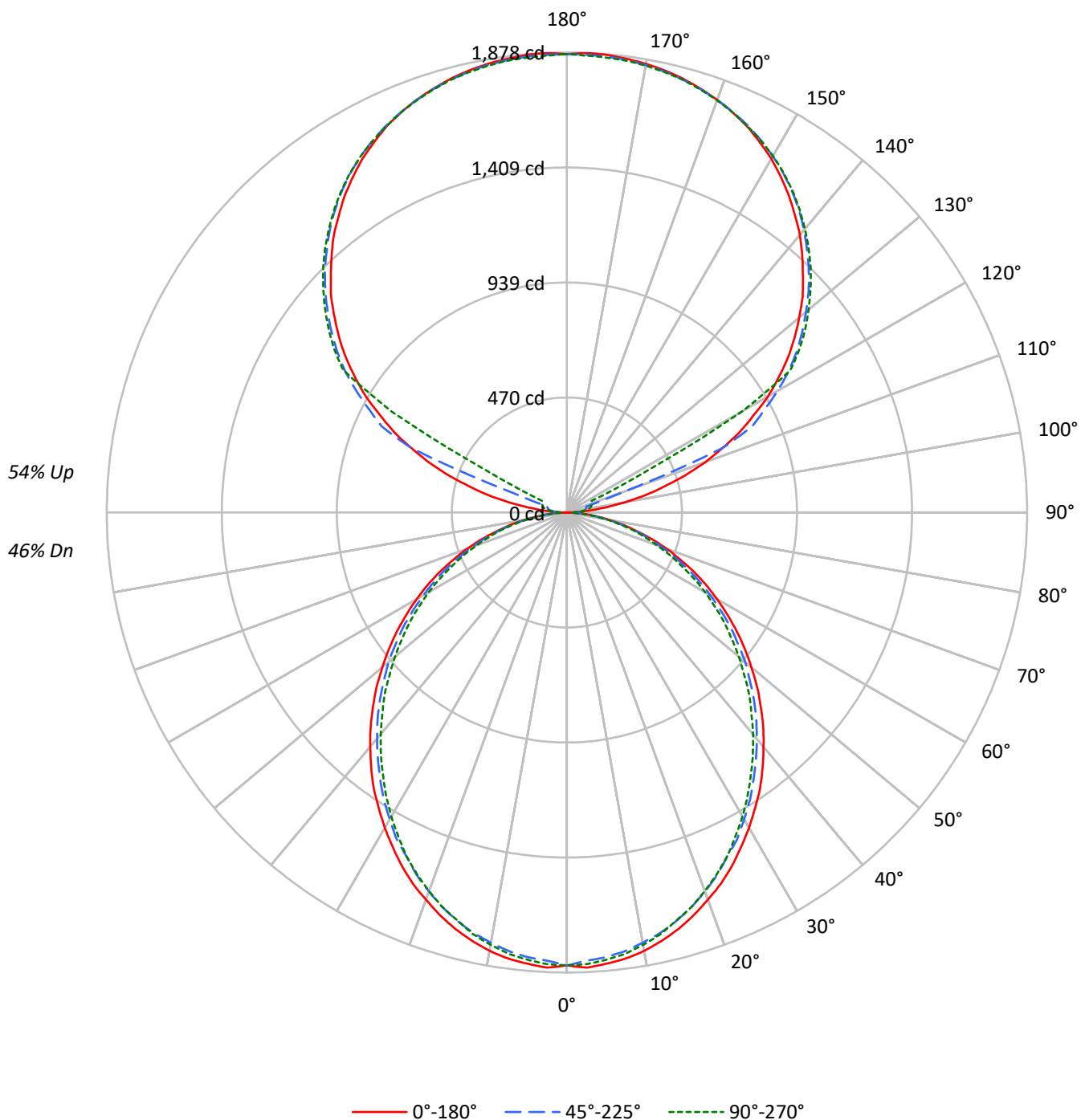
Lumens per Lamp: N/A
Luminaire Lumens: 10193.0 lumens
Efficiency: N/A
Efficacy: 96.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 106.2
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
RCR																	
0	106	106	106	106	98	98	98	98	81	81	81		66	66	66		53
1	97	93	89	85	89	85	82	79	71	69	67		58	57	55		46
2	88	81	75	70	81	74	69	65	62	59	55		51	48	46		41
3	81	71	64	58	74	66	59	54	55	50	46		45	42	39		36
4	74	63	55	49	67	58	51	46	49	44	40		40	37	33		32
5	68	56	48	42	62	52	45	39	44	38	34		36	32	29		29
6	62	50	42	36	57	46	39	34	39	34	30		33	29	25		26
7	58	45	37	32	53	42	35	30	36	30	26		30	26	22		24
8	53	41	33	28	49	38	31	26	33	27	23		27	23	20		22
9	50	38	30	25	46	35	28	24	30	24	21		25	21	18		21
10	46	34	27	22	43	32	26	21	27	22	19		23	19	16		19

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	1.7
10°-20°	489.7	4.8
20°-30°	719.6	7.1
30°-40°	835.8	8.2
40°-50°	834.7	8.2
50°-60°	727.9	7.1
60°-70°	538.1	5.3
70°-80°	304.4	3.0
80°-90°	83.6	0.8
90°-100°	61.7	0.6
100°-110°	230.0	2.3
110°-120°	610.0	6.0
120°-130°	1011.7	9.9
130°-140°	1074.6	10.5
140°-150°	998.8	9.8
150°-160°	803.0	7.9
160°-170°	517.4	5.1
170°-180°	178.1	1.7
0°-30°	1383.3	13.6
0°-40°	2219.1	21.8
0°-60°	3781.7	37.1
0°-90°	4707.8	46.2
90°-120°	901.6	8.8
90°-150°	3986.8	39.1
90°-180°	5485.0	53.8
0°-180°	10193.0	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°	1	16	27	34	36	9
95°	88	43	53	60	58	104
105°	412	452	83	97	103	440
115°	778	801	835	208	111	766
125°	1101	1118	1144	1154	1158	982
135°	1362	1384	1396	1409	1407	1052
145°	1580	1579	1602	1611	1604	988
155°	1740	1728	1744	1752	1741	802
165°	1833	1825	1829	1838	1829	518
175°	1875	1866	1868	1878	1864	178
180°	1871	1871	1871	1871	1871	

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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°	1.3	16.2	27.0	33.9	36.5
92.5°	33.9	28.4	32.5	35.2	36.5
95°	87.9	43.2	52.7	59.6	58.2
97.5°	158.3	47.4	69.0	73.2	74.4
100°	239.7	54.2	77.1	87.9	90.7
102.5°	328.9	326.4	79.9	94.7	98.8
105°	411.6	452.2	82.6	97.4	102.9
107.5°	507.7	541.5	85.4	100.2	105.7
110°	599.9	628.1	237.0	101.6	106.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	686.5	710.7	687.8	104.1	108.3
115°	778.5	801.4	835.3	208.5	111.1
117.5°	858.4	885.4	908.5	714.8	360.1
120°	947.7	968.0	992.5	1008.7	825.9
122.5°	1023.4	1045.1	1072.4	1080.4	1081.8
125°	1100.6	1118.3	1144.0	1153.5	1157.5
127.5°	1171.1	1190.0	1210.4	1224.0	1225.2
130°	1237.4	1259.1	1273.9	1288.9	1287.6
132.5°	1305.1	1322.8	1337.6	1349.8	1348.5
135°	1362.0	1383.7	1395.8	1409.4	1406.8
137.5°	1421.5	1437.8	1451.4	1465.0	1460.9
140°	1479.7	1490.6	1505.4	1517.6	1510.9
142.5°	1528.6	1538.1	1555.6	1566.3	1559.6
145°	1580.0	1578.6	1601.6	1611.1	1604.4
147.5°	1624.6	1620.6	1643.6	1650.3	1645.0
150°	1668.0	1658.5	1680.2	1688.2	1681.5
152.5°	1704.5	1693.7	1714.0	1722.1	1712.7
155°	1739.7	1727.6	1743.8	1751.9	1741.1
157.5°	1768.1	1757.4	1769.6	1779.1	1768.1
160°	1792.6	1784.4	1792.6	1800.6	1791.1
162.5°	1814.2	1806.1	1812.8	1822.3	1810.1
165°	1833.1	1825.1	1829.0	1838.5	1829.0
167.5°	1848.1	1839.8	1844.0	1853.5	1841.3
170°	1860.2	1852.1	1854.8	1864.3	1852.1
172.5°	1868.3	1860.2	1863.0	1872.4	1860.2
175°	1875.1	1865.6	1868.3	1877.8	1864.3
177.5°	1877.8	1868.3	1869.8	1879.3	1867.0
180°	1871.0	1871.0	1871.0	1871.0	1871.0

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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	8.02	8.84	9.01	9.85	11.17	7.58	8.41	8.57	9.41	10.74
	3H	9.67	10.42	10.67	11.43	12.77	9.20	9.94	10.20	10.95	12.30
	4H	10.26	10.96	11.27	11.98	13.33	9.79	10.49	10.80	11.50	12.86
	6H	10.66	11.31	11.68	12.33	13.69	10.18	10.83	11.21	11.85	13.22
	8H	10.76	11.38	11.79	12.42	13.78	10.29	10.91	11.32	11.94	13.30
	12H	10.81	11.40	11.85	12.43	13.81	10.33	10.92	11.36	11.95	13.33
4H	2H	8.47	9.18	9.49	10.19	11.54	8.13	8.83	9.15	9.85	11.20
	3H	10.34	10.92	11.37	11.97	13.33	9.95	10.53	10.97	11.57	12.94
	4H	11.05	11.59	12.09	12.62	14.01	10.65	11.18	11.68	12.22	13.61
	6H	11.57	12.03	12.61	13.09	14.47	11.16	11.62	12.20	12.68	14.06
	8H	11.72	12.15	12.76	13.20	14.60	11.30	11.73	12.35	12.78	14.19
	12H	11.79	12.18	12.85	13.24	14.65	11.37	11.76	12.43	12.82	14.23
8H	4H	11.25	11.68	12.29	12.73	14.13	10.89	11.32	11.93	12.37	13.77
	6H	11.88	12.23	12.95	13.33	14.72	11.51	11.87	12.58	12.96	14.36
	8H	12.10	12.41	13.18	13.49	14.91	11.73	12.04	12.81	13.12	14.54
	12H	12.23	12.51	13.31	13.58	15.04	11.84	12.12	12.93	13.19	14.65
12H	4H	11.23	11.62	12.30	12.69	14.09	10.88	11.27	11.94	12.33	13.74
	6H	11.91	12.22	12.98	13.30	14.72	11.56	11.87	12.63	12.95	14.36
	8H	12.15	12.43	13.23	13.50	14.95	11.79	12.07	12.87	13.14	14.60