

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: P928610

Luminaire Tested: DFN2DIP-HX4F0-070D060US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928610
REPORT IS A COMBINATION OF REPORTS P900862 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D060US930-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

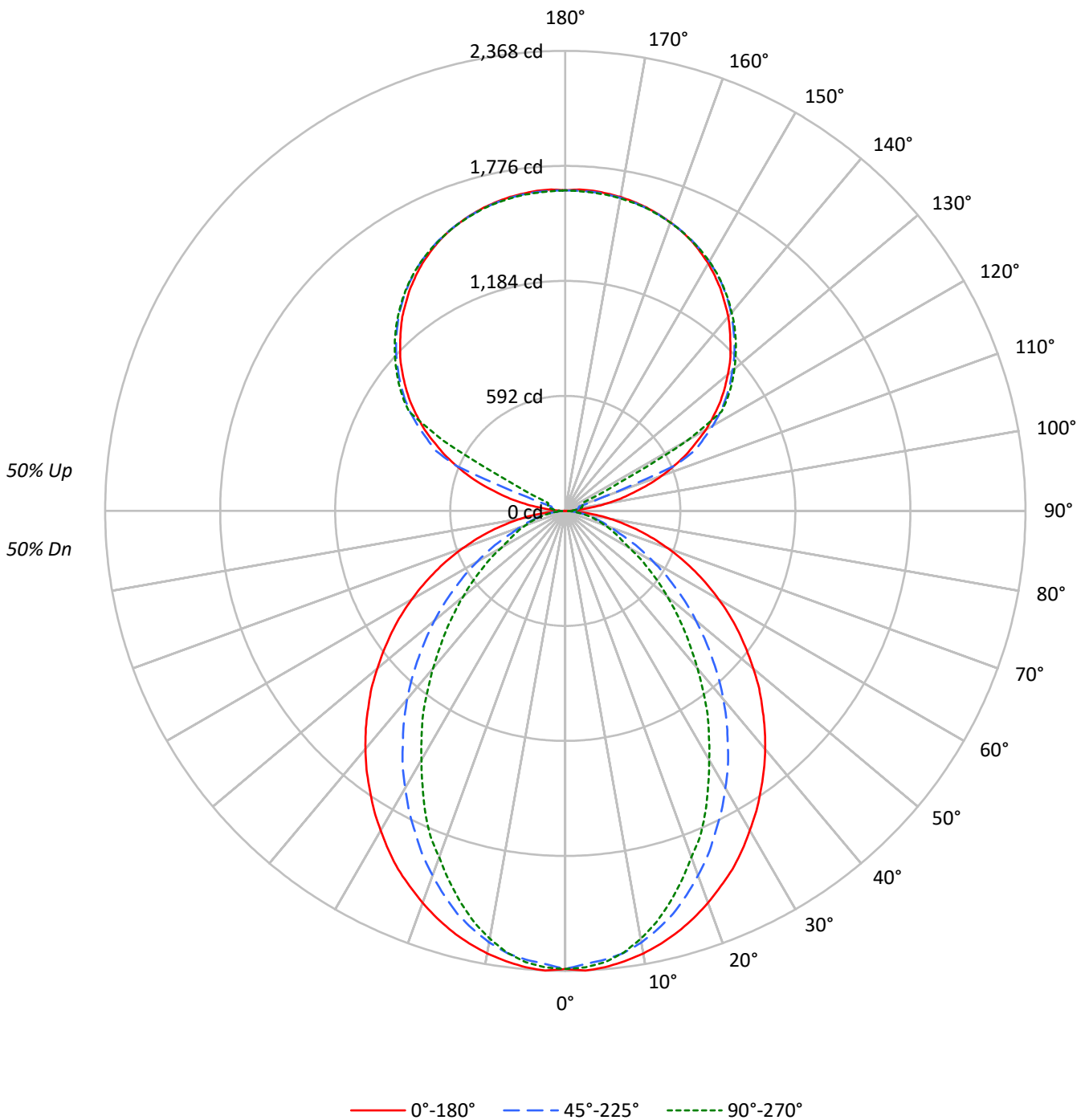
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9690.3 lumens
Efficiency: N/A
Efficacy: 87.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 110.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	56	56	56	50
1	98	94	90	87	91	87	84	81	74	72	69	62	60	59	50	49	48	50	49	48	43
2	90	83	77	72	83	77	72	67	65	62	58	55	52	50	45	43	41	45	43	41	37
3	82	73	66	60	76	68	62	57	58	53	50	49	45	43	40	38	36	40	38	36	32
4	76	65	57	52	70	60	54	49	52	47	43	44	40	37	36	34	31	36	34	31	28
5	70	58	50	45	64	54	47	42	47	41	37	40	35	32	33	30	28	33	30	28	24
6	64	52	45	39	59	49	42	37	42	37	33	36	32	29	30	27	25	30	27	25	22
7	59	47	40	34	55	44	37	32	38	33	29	33	29	25	28	24	22	28	24	22	19
8	55	43	36	30	51	40	34	29	35	30	26	30	26	23	25	22	20	25	22	20	18
9	52	40	32	27	48	37	30	26	32	27	23	28	24	21	24	20	18	24	20	18	16
10	48	36	29	25	45	34	28	23	30	25	21	26	22	19	22	19	17	22	19	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1753	1753	1753
5°	1756	1726	1737
10°	1739	1692	1680
15°	1715	1636	1593
20°	1684	1559	1486
25°	1651	1473	1382
30°	1608	1384	1251
35°	1565	1289	1136
40°	1522	1191	1004
45°	1472	1082	884
50°	1420	971	767
55°	1366	853	654
60°	1303	730	539
65°	1231	605	485
70°	1143	488	439
75°	1034	431	399
80°	874	362	347
85°	611	242	261

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1472 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.0	2.3
10°-20°	606.6	6.3
20°-30°	851.7	8.8
30°-40°	928.4	9.6
40°-50°	853.3	8.8
50°-60°	670.1	6.9
60°-70°	436.2	4.5
70°-80°	224.5	2.3
80°-90°	60.2	0.6
90°-100°	54.4	0.6
100°-110°	202.9	2.1
110°-120°	538.0	5.6
120°-130°	892.3	9.2
130°-140°	947.9	9.8
140°-150°	880.9	9.1
150°-160°	708.2	7.3
160°-170°	456.4	4.7
170°-180°	157.1	1.6
0°-30°	1679.3	17.3
0°-40°	2607.7	26.9
0°-60°	4131.2	42.6
0°-90°	4852.1	50.1
90°-120°	795.3	8.2
90°-150°	3516.4	36.3
90°-180°	4838.0	49.9
0°-180°	9690.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2358	2358	2358	2358	2358	
5°	2358	2347	2319	2339	2332	224
15°	2243	2219	2147	2106	2085	632
25°	2036	1967	1826	1739	1707	936
35°	1754	1645	1458	1323	1276	1098
45°	1434	1291	1067	915	864	1107
55°	1090	924	693	566	525	974
65°	736	563	371	299	292	730
75°	393	243	171	156	154	415
85°	92	47	40	40	40	105
90°	1	14	24	30	32	9
95°	78	38	46	53	51	92
105°	363	399	73	86	91	388
115°	687	707	737	184	98	676
125°	971	986	1009	1017	1021	866
135°	1201	1220	1231	1243	1241	928
145°	1394	1392	1413	1421	1415	872
155°	1534	1524	1538	1545	1536	707
165°	1617	1610	1613	1622	1613	457
175°	1654	1646	1648	1656	1644	157
180°	1650	1650	1650	1650	1650	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2357.9	2357.9	2357.9	2357.9	2357.9
2.5°	2368.5	2357.9	2334.3	2355.8	2351.5
5°	2357.9	2347.2	2319.4	2338.6	2332.3
7.5°	2338.6	2325.9	2296.1	2304.4	2293.8
10°	2313.1	2298.1	2255.5	2249.0	2236.3
12.5°	2281.1	2261.9	2204.2	2191.5	2167.9
15°	2242.6	2219.1	2146.6	2106.1	2084.9
17.5°	2197.8	2163.7	2074.0	2027.1	1992.9
20°	2146.6	2103.8	1997.2	1944.0	1896.9
22.5°	2091.2	2042.1	1918.2	1845.7	1813.9
25°	2035.7	1967.3	1826.5	1739.1	1707.0
27.5°	1969.6	1896.9	1741.2	1640.9	1591.8
30°	1899.2	1817.9	1647.2	1538.6	1480.9
32.5°	1830.8	1732.6	1557.8	1429.7	1376.2
35°	1754.0	1645.2	1457.5	1323.1	1276.0
37.5°	1679.4	1561.9	1363.6	1216.1	1163.0
40°	1600.3	1472.5	1265.3	1113.9	1058.4
42.5°	1519.3	1382.8	1167.2	1009.2	956.1
45°	1434.0	1290.9	1067.0	915.3	864.1
47.5°	1352.9	1201.5	971.0	819.3	772.5
50°	1263.2	1111.8	877.0	729.7	685.1
52.5°	1175.6	1015.6	787.4	646.5	606.0
55°	1090.3	923.9	693.4	565.5	525.0
57.5°	1002.9	832.2	610.4	490.8	456.6
60°	913.3	742.5	522.7	414.1	379.9
62.5°	825.8	655.2	448.0	345.7	328.7
65°	736.2	563.2	371.3	298.9	292.3
67.5°	650.9	477.9	298.9	262.3	256.1
70°	561.2	394.8	247.4	226.2	217.5
72.5°	475.9	317.8	206.9	190.0	185.7
75°	392.6	243.1	170.7	155.7	153.7
77.5°	309.5	172.7	134.5	125.8	121.6
80°	232.5	123.8	102.4	94.0	94.0
82.5°	162.1	83.3	70.4	66.1	66.1
85°	91.7	46.9	40.5	40.5	40.5
87.5°	34.1	17.0	17.0	14.9	14.9
90°	1.1	14.3	23.8	29.9	32.2
92.5°	29.9	25.1	28.6	31.1	32.2
95°	77.6	38.1	46.5	52.6	51.3
97.5°	139.7	41.8	60.8	64.5	65.7
100°	211.4	47.8	68.1	77.6	80.0
102.5°	290.1	287.9	70.5	83.5	87.2
105°	363.0	398.9	72.9	85.9	90.8
107.5°	447.8	477.6	75.3	88.3	93.2
110°	529.1	554.0	209.0	89.6	94.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	605.5	626.9	606.6	91.9	95.6
115°	686.6	706.9	736.8	183.9	98.0
117.5°	757.1	780.9	801.3	630.5	317.6
120°	835.9	853.8	875.4	889.7	728.4
122.5°	902.7	921.8	945.8	952.9	954.2
125°	970.8	986.4	1009.1	1017.4	1021.0
127.5°	1032.9	1049.6	1067.6	1079.5	1080.7
130°	1091.4	1110.6	1123.6	1136.8	1135.7
132.5°	1151.2	1166.8	1179.8	1190.6	1189.4
135°	1201.4	1220.5	1231.1	1243.2	1240.8
137.5°	1253.8	1268.1	1280.2	1292.1	1288.6
140°	1305.1	1314.8	1327.9	1338.6	1332.7
142.5°	1348.3	1356.6	1372.1	1381.6	1375.6
145°	1393.6	1392.3	1412.6	1421.0	1415.1
147.5°	1432.9	1429.3	1449.6	1455.6	1450.9
150°	1471.2	1462.8	1482.0	1489.1	1483.1
152.5°	1503.4	1493.9	1511.7	1519.0	1510.6
155°	1534.5	1523.8	1538.1	1545.2	1535.7
157.5°	1559.6	1550.0	1560.8	1569.2	1559.6
160°	1581.1	1573.8	1581.1	1588.2	1579.9
162.5°	1600.1	1593.0	1598.9	1607.3	1596.6
165°	1616.9	1609.8	1613.3	1621.7	1613.3
167.5°	1630.0	1622.8	1626.5	1634.9	1624.1
170°	1640.8	1633.6	1636.0	1644.3	1633.6
172.5°	1647.9	1640.8	1643.2	1651.6	1640.8
175°	1653.9	1645.5	1647.9	1656.2	1644.3
177.5°	1656.2	1647.9	1649.2	1657.5	1646.8
180°	1650.3	1650.3	1650.3	1650.3	1650.3



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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	9.11	9.94	10.07	10.91	12.18	5.08	5.91	6.04	6.88	8.16
	3H	10.78	11.53	11.76	12.51	13.80	6.27	7.01	7.24	7.99	9.29
	4H	11.39	12.10	12.38	13.08	14.39	6.72	7.42	7.71	8.41	9.71
	6H	11.82	12.46	12.81	13.45	14.77	7.04	7.69	8.04	8.68	10.00
	8H	11.94	12.56	12.95	13.57	14.88	7.13	7.75	8.14	8.76	10.07
	12H	12.00	12.59	13.01	13.59	14.93	7.18	7.76	8.19	8.77	10.10
4H	2H	9.12	9.83	10.12	10.81	12.12	5.67	6.38	6.67	7.36	8.67
	3H	10.95	11.54	11.96	12.55	13.87	7.03	7.61	8.03	8.63	9.94
	4H	11.65	12.18	12.66	13.19	14.53	7.58	8.11	8.59	9.12	10.46
	6H	12.16	12.62	13.19	13.65	14.99	8.00	8.46	9.02	9.49	10.83
	8H	12.34	12.77	13.36	13.79	15.14	8.13	8.56	9.15	9.58	10.93
	12H	12.44	12.82	13.48	13.86	15.22	8.19	8.58	9.23	9.62	10.98
8H	4H	11.62	12.04	12.64	13.07	14.42	7.86	8.28	8.88	9.31	10.66
	6H	12.18	12.54	13.23	13.60	14.95	8.38	8.73	9.42	9.80	11.15
	8H	12.40	12.71	13.46	13.76	15.13	8.57	8.88	9.63	9.93	11.30
	12H	12.54	12.81	13.60	13.86	15.27	8.69	8.96	9.75	10.01	11.42
12H	4H	11.57	11.95	12.61	12.99	14.35	7.86	8.25	8.90	9.29	10.65
	6H	12.16	12.47	13.21	13.52	14.89	8.43	8.74	9.48	9.79	11.16
	8H	12.38	12.65	13.44	13.70	15.11	8.64	8.91	9.70	9.96	11.37