

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: P929218

Luminaire Tested: DFN2DIP-HX4F0-060D050US940-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929218
REPORT IS A COMBINATION OF REPORTS P900842 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D050US940-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

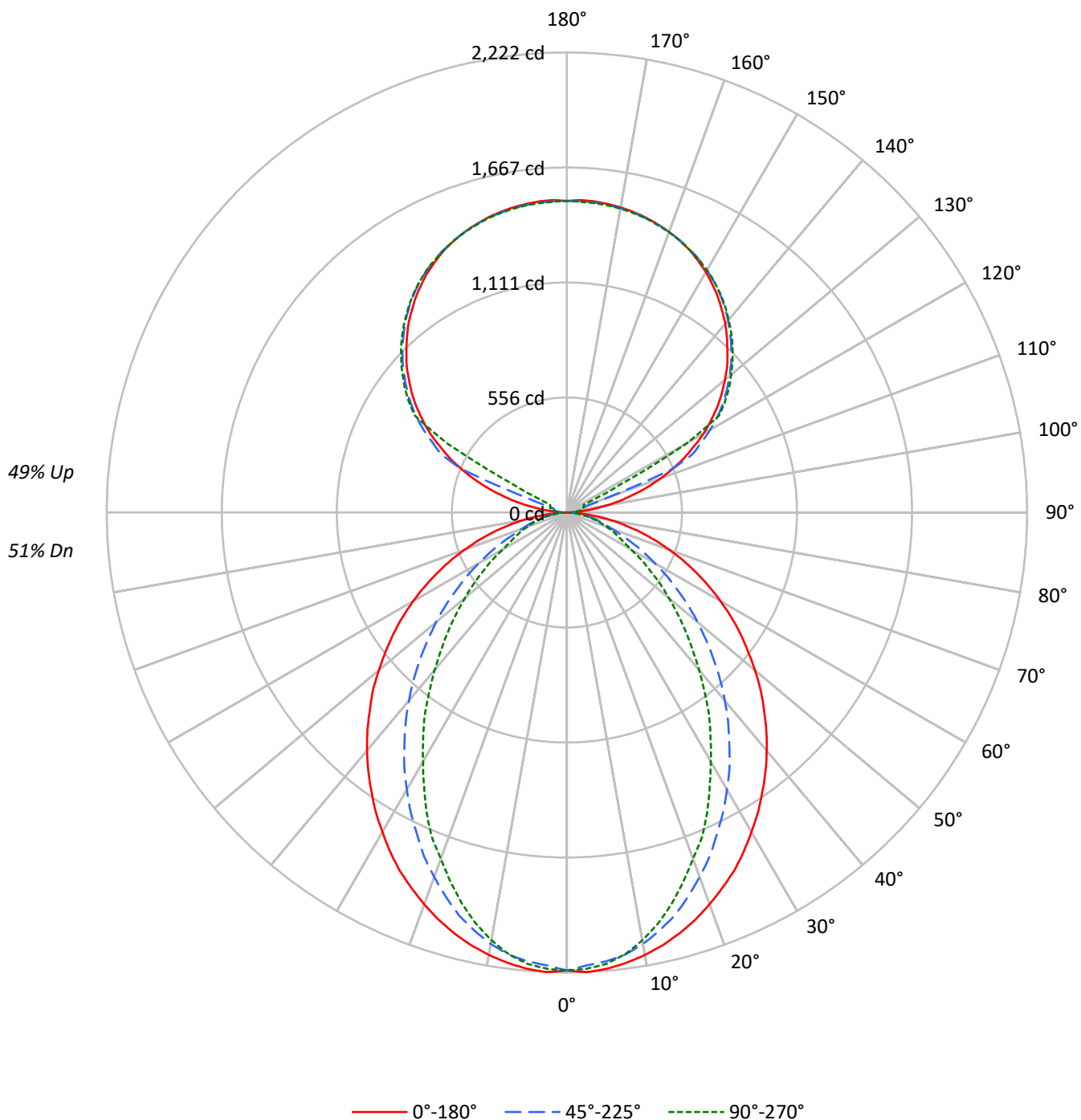
Lumens per Lamp: N/A
Luminaire Lumens: 8964.6 lumens
Efficiency: N/A
Efficacy: 97.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 91.8
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	107	107	107	107	99	99	99	99	84	84	84	70	70	70	57	57	57
1	98	94	91	87	91	87	84	81	74	72	70	62	61	59	51	50	49
2	90	83	77	72	83	77	72	67	66	62	59	55	52	50	45	44	42
3	82	73	66	61	76	68	62	57	58	54	50	49	46	43	41	38	36
4	76	65	58	52	70	61	54	49	52	47	43	44	40	37	37	34	32
5	70	58	50	45	64	54	47	42	47	41	37	40	36	33	33	30	28
6	64	53	45	39	59	49	42	37	42	37	33	36	32	29	30	27	25
7	60	48	40	34	55	45	38	33	39	33	29	33	29	26	28	25	22
8	55	43	36	31	51	41	34	29	35	30	26	30	26	23	26	23	20
9	52	40	32	27	48	37	31	26	32	27	23	28	24	21	24	21	18
10	48	36	29	25	45	34	28	24	30	25	21	26	22	19	22	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1645	1645	1645
5°	1648	1619	1629
10°	1631	1587	1576
15°	1609	1535	1494
20°	1579	1463	1394
25°	1549	1382	1297
30°	1508	1299	1174
35°	1469	1210	1065
40°	1428	1117	941
45°	1381	1015	829
50°	1332	911	719
55°	1281	801	614
60°	1222	685	505
65°	1155	567	455
70°	1073	458	412
75°	970	404	375
80°	820	339	325
85°	573	227	245

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1381 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	207.3	2.3
10°-20°	569.1	6.3
20°-30°	799.0	8.9
30°-40°	871.0	9.7
40°-50°	800.5	8.9
50°-60°	628.7	7.0
60°-70°	409.2	4.6
70°-80°	210.6	2.3
80°-90°	56.4	0.6
90°-100°	49.7	0.6
100°-110°	185.0	2.1
110°-120°	490.7	5.5
120°-130°	813.9	9.1
130°-140°	864.5	9.6
140°-150°	803.5	9.0
150°-160°	646.0	7.2
160°-170°	416.2	4.6
170°-180°	143.3	1.6
0°-30°	1575.4	17.6
0°-40°	2446.4	27.3
0°-60°	3875.6	43.2
0°-90°	4551.9	50.8
90°-120°	725.4	8.1
90°-150°	3207.3	35.8
90°-180°	4413.0	49.2
0°-180°	8964.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2212	2212	2212	2212	2212	
5°	2212	2202	2176	2194	2188	210
15°	2104	2082	2014	1976	1956	593
25°	1910	1846	1714	1632	1601	878
35°	1646	1543	1367	1241	1197	1030
45°	1345	1211	1001	859	811	1039
55°	1023	867	650	531	492	914
65°	691	528	348	280	274	685
75°	368	228	160	146	144	390
85°	86	44	38	38	38	99
90°	1	13	22	27	29	8
95°	71	35	42	48	47	84
105°	331	364	66	78	83	354
115°	626	645	672	168	89	617
125°	885	900	920	928	931	790
135°	1096	1113	1123	1134	1132	846
145°	1271	1270	1288	1296	1291	795
155°	1400	1390	1403	1409	1401	645
165°	1475	1468	1471	1479	1471	417
175°	1508	1501	1503	1511	1500	144
180°	1505	1505	1505	1505	1505	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2212.0	2212.0	2212.0	2212.0	2212.0
2.5°	2222.0	2212.0	2189.9	2210.0	2206.0
5°	2212.0	2202.0	2175.9	2194.0	2188.0
7.5°	2194.0	2182.0	2154.0	2161.9	2151.9
10°	2169.9	2155.9	2116.0	2109.8	2097.9
12.5°	2140.0	2121.9	2067.7	2055.9	2033.8
15°	2103.9	2081.7	2013.8	1975.8	1955.8
17.5°	2061.9	2029.7	1945.6	1901.7	1869.6
20°	2013.8	1973.6	1873.6	1823.7	1779.5
22.5°	1961.8	1915.7	1799.5	1731.6	1701.6
25°	1909.8	1845.6	1713.5	1631.6	1601.4
27.5°	1847.8	1779.5	1633.4	1539.3	1493.3
30°	1781.7	1705.4	1545.3	1443.3	1389.2
32.5°	1717.5	1625.4	1461.5	1341.2	1291.1
35°	1645.6	1543.4	1367.3	1241.1	1197.0
37.5°	1575.5	1465.2	1279.2	1141.0	1091.0
40°	1501.3	1381.4	1187.0	1044.9	992.9
42.5°	1425.3	1297.2	1095.0	946.8	896.9
45°	1345.2	1211.0	1001.0	858.6	810.6
47.5°	1269.2	1127.1	910.9	768.6	724.7
50°	1185.1	1043.0	822.8	684.5	642.7
52.5°	1102.9	952.7	738.7	606.6	568.6
55°	1022.9	866.8	650.5	530.6	492.5
57.5°	940.9	780.7	572.6	460.5	428.3
60°	856.8	696.7	490.4	388.5	356.4
62.5°	774.8	614.7	420.3	324.3	308.4
65°	690.7	528.4	348.3	280.4	274.2
67.5°	610.6	448.3	280.4	246.2	240.2
70°	526.5	370.4	232.1	212.2	204.1
72.5°	446.4	298.2	194.1	178.2	174.1
75°	368.3	228.1	160.1	146.1	144.2
77.5°	290.3	162.1	126.1	118.1	114.1
80°	218.1	116.1	96.0	88.1	88.1
82.5°	152.1	78.1	66.0	62.0	62.0
85°	86.0	44.0	38.0	38.0	38.0
87.5°	32.1	16.0	16.0	14.0	14.0
90°	1.1	13.0	21.8	27.3	29.3
92.5°	27.3	22.9	26.1	28.4	29.3
95°	70.7	34.8	42.5	48.0	46.8
97.5°	127.4	38.2	55.5	58.9	59.9
100°	192.9	43.6	62.1	70.7	73.0
102.5°	264.7	262.5	64.3	76.2	79.6
105°	331.1	363.8	66.5	78.4	82.8
107.5°	408.4	435.6	68.7	80.5	85.0
110°	482.6	505.3	190.6	81.7	86.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	552.2	571.8	553.3	83.8	87.1
115°	626.3	644.7	672.0	167.8	89.4
117.5°	690.5	712.3	730.9	575.0	289.7
120°	762.4	778.7	798.3	811.5	664.4
122.5°	823.3	840.8	862.7	869.2	870.3
125°	885.4	899.7	920.4	927.9	931.2
127.5°	942.0	957.3	973.8	984.6	985.7
130°	995.5	1013.0	1024.8	1036.9	1035.9
132.5°	1050.0	1064.2	1076.0	1085.9	1084.9
135°	1095.7	1113.2	1122.8	1133.9	1131.7
137.5°	1143.5	1156.7	1167.6	1178.5	1175.3
140°	1190.4	1199.2	1211.1	1220.9	1215.5
142.5°	1229.7	1237.4	1251.5	1260.1	1254.7
145°	1271.1	1269.9	1288.4	1296.1	1290.6
147.5°	1307.0	1303.7	1322.2	1327.7	1323.4
150°	1341.8	1334.3	1351.6	1358.2	1352.7
152.5°	1371.2	1362.5	1378.9	1385.5	1377.8
155°	1399.5	1389.8	1402.8	1409.4	1400.7
157.5°	1422.4	1413.7	1423.5	1431.2	1422.4
160°	1442.1	1435.5	1442.1	1448.5	1440.9
162.5°	1459.4	1453.0	1458.3	1466.0	1456.2
165°	1474.7	1468.2	1471.4	1479.0	1471.4
167.5°	1486.7	1480.1	1483.5	1491.1	1481.3
170°	1496.5	1489.9	1492.1	1499.7	1489.9
172.5°	1503.0	1496.5	1498.7	1506.3	1496.5
175°	1508.5	1500.8	1503.0	1510.6	1499.7
177.5°	1510.6	1503.0	1504.2	1511.8	1501.9
180°	1505.2	1505.2	1505.2	1505.2	1505.2

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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	8.95	9.79	9.91	10.75	12.02	4.92	5.76	5.88	6.73	7.99
	3H	10.63	11.38	11.60	12.35	13.64	6.11	6.86	7.08	7.84	9.12
	4H	11.24	11.94	12.22	12.93	14.22	6.57	7.27	7.55	8.25	9.55
	6H	11.66	12.31	12.65	13.30	14.60	6.89	7.54	7.88	8.53	9.83
	8H	11.79	12.41	12.79	13.41	14.71	6.98	7.60	7.98	8.60	9.90
	12H	11.85	12.44	12.85	13.43	14.76	7.02	7.61	8.03	8.61	9.94
4H	2H	8.97	9.68	9.96	10.66	11.95	5.52	6.23	6.51	7.21	8.50
	3H	10.80	11.39	11.80	12.40	13.71	6.87	7.46	7.87	8.47	9.78
	4H	11.49	12.03	12.50	13.03	14.36	7.42	7.96	8.43	8.96	10.29
	6H	12.01	12.47	13.03	13.50	14.83	7.84	8.30	8.86	9.33	10.66
	8H	12.19	12.62	13.20	13.64	14.98	7.97	8.40	8.99	9.42	10.77
	12H	12.28	12.67	13.32	13.70	15.05	8.04	8.43	9.08	9.46	10.81
8H	4H	11.46	11.89	12.48	12.91	14.25	7.70	8.13	8.72	9.15	10.50
	6H	12.03	12.38	13.07	13.45	14.79	8.22	8.58	9.27	9.64	10.98
	8H	12.25	12.56	13.30	13.61	14.97	8.42	8.73	9.47	9.78	11.14
	12H	12.39	12.66	13.44	13.70	15.11	8.54	8.81	9.59	9.85	11.26
12H	4H	11.41	11.80	12.45	12.84	14.19	7.71	8.10	8.74	9.13	10.48
	6H	12.00	12.32	13.05	13.36	14.72	8.27	8.59	9.32	9.63	10.99
	8H	12.23	12.50	13.28	13.54	14.95	8.49	8.76	9.54	9.80	11.21