

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: P924536

Luminaire Tested: DFN2DIP-HX4F0-050D080US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924536
REPORT IS A COMBINATION OF REPORTS P899373 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D080US950-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

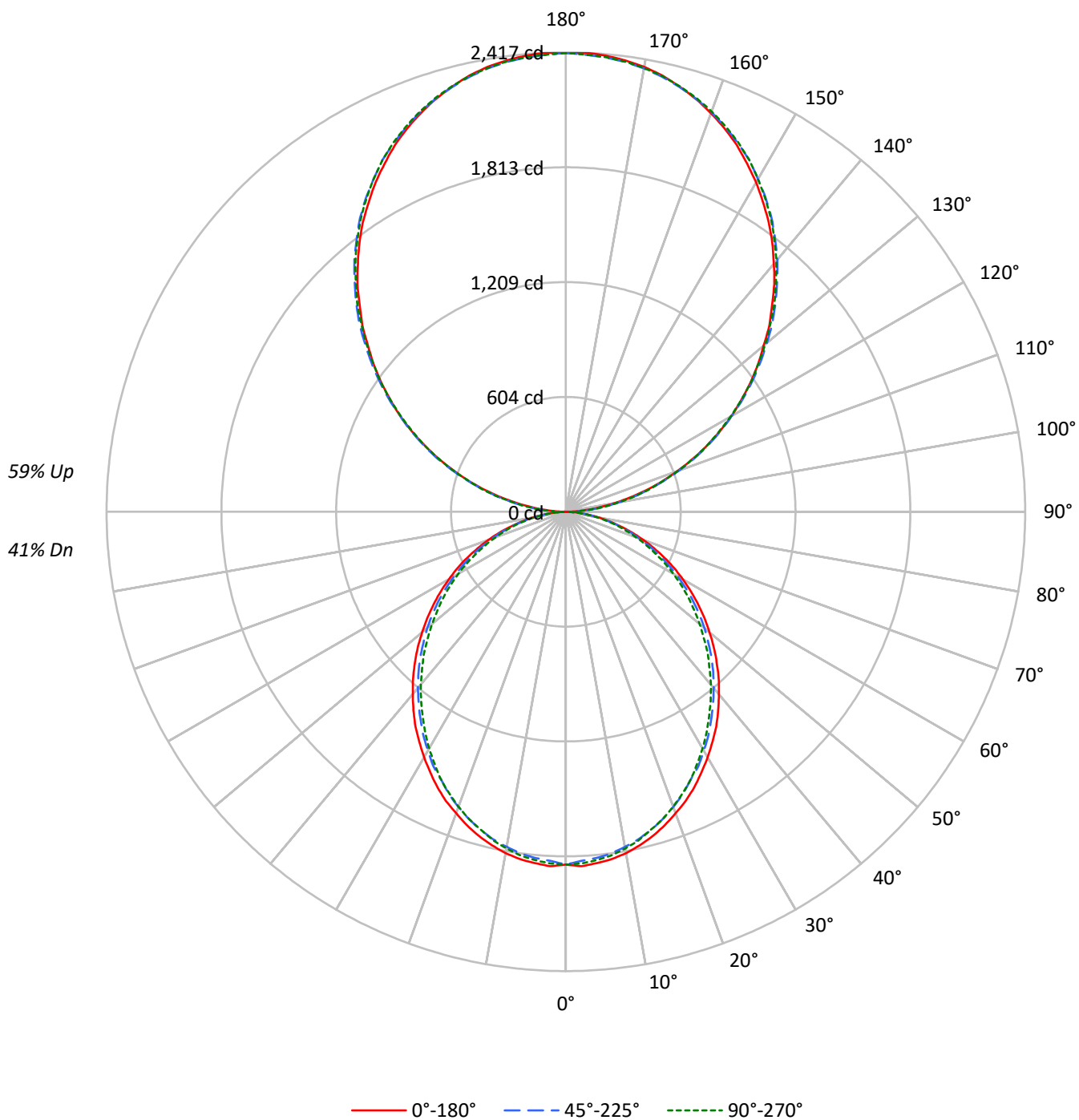
Lumens per Lamp: N/A
Luminaire Lumens: 11476.6 lumens
Efficiency: N/A
Efficacy: 129.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 89
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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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CATALOG NUMBER: DFN2DIP-HX4F0-050D080US950-FLLFL

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	78	78	78	63	63	63	48	48	48
1	96	92	88	84	87	84	80	77	69	66	64	55	53	52	42	41	41
2	87	80	74	69	79	73	68	63	60	56	53	48	46	43	37	36	34
3	80	70	63	57	72	64	58	53	53	48	45	43	39	37	33	31	29
4	73	62	54	48	66	57	50	45	47	42	38	38	34	31	30	27	25
5	67	55	47	41	61	51	44	38	42	37	33	34	30	27	27	24	22
6	61	50	42	36	56	46	38	33	38	33	29	31	27	24	24	21	19
7	57	45	37	31	52	41	34	29	34	29	25	28	24	21	22	19	17
8	53	40	33	28	48	37	31	26	31	26	22	26	22	19	20	17	15
9	49	37	30	25	45	34	27	23	29	23	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	26	21	18	22	18	15	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1380	1380	1380
5°	1382	1361	1370
10°	1371	1343	1352
15°	1351	1321	1323
20°	1324	1290	1293
25°	1297	1254	1259
30°	1263	1220	1215
35°	1231	1179	1169
40°	1192	1139	1125
45°	1152	1098	1081
50°	1109	1056	1029
55°	1064	1006	981
60°	1013	948	926
65°	958	887	862
70°	887	813	792
75°	789	724	728
80°	672	612	606
85°	487	416	403

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1822 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	174.7	1.5
10°-20°	491.5	4.3
20°-30°	722.3	6.3
30°-40°	838.9	7.3
40°-50°	837.9	7.3
50°-60°	730.6	6.4
60°-70°	540.1	4.7
70°-80°	305.6	2.7
80°-90°	87.5	0.8
90°-100°	149.4	1.3
100°-110°	474.6	4.1
110°-120°	812.1	7.1
120°-130°	1068.1	9.3
130°-140°	1198.9	10.4
140°-150°	1175.6	10.2
150°-160°	986.2	8.6
160°-170°	654.0	5.7
170°-180°	228.6	2.0
0°-30°	1388.5	12.1
0°-40°	2227.5	19.4
0°-60°	3796.0	33.1
0°-90°	4729.1	41.2
90°-120°	1436.1	12.5
90°-150°	4878.6	42.5
90°-180°	6747.0	58.8
0°-180°	11476.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1856	1856	1856	1856	1856	
5°	1856	1849	1829	1844	1840	176
15°	1767	1756	1733	1740	1731	498
25°	1599	1585	1554	1558	1554	736
35°	1380	1362	1333	1322	1314	862
45°	1123	1110	1083	1064	1057	866
55°	850	839	817	796	787	760
65°	573	562	544	528	519	567
75°	300	296	287	277	280	320
85°	73	71	70	64	62	82
90°	2	26	71	67	69	11
95°	106	127	130	130	127	118
105°	438	444	448	452	452	462
115°	815	827	823	821	815	806
125°	1185	1204	1198	1191	1189	1059
135°	1533	1556	1560	1558	1552	1185
145°	1861	1876	1888	1890	1882	1163
155°	2128	2134	2141	2151	2144	980
165°	2316	2313	2313	2328	2318	653
175°	2409	2404	2399	2414	2401	229
180°	2414	2414	2414	2414	2414	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1856.0	1856.0	1856.0	1856.0	1856.0
2.5°	1866.8	1857.9	1838.3	1856.0	1852.7
5°	1856.0	1849.0	1829.3	1843.5	1840.2
7.5°	1843.5	1832.9	1813.3	1827.7	1824.0
10°	1824.0	1811.6	1790.2	1804.3	1799.1
12.5°	1797.1	1786.6	1765.2	1774.1	1770.4
15°	1766.8	1756.2	1732.9	1740.2	1731.2
17.5°	1729.3	1718.7	1695.4	1704.3	1695.4
20°	1688.3	1677.7	1652.7	1658.0	1651.0
22.5°	1647.4	1631.2	1608.0	1608.0	1604.3
25°	1599.1	1584.9	1554.5	1558.0	1554.5
27.5°	1545.5	1533.0	1509.9	1504.6	1495.7
30°	1492.1	1477.7	1451.0	1445.7	1438.5
32.5°	1434.9	1424.3	1395.7	1384.9	1377.8
35°	1379.6	1361.8	1333.2	1322.4	1313.6
37.5°	1317.1	1301.1	1272.4	1259.9	1251.1
40°	1253.0	1238.6	1210.0	1194.0	1186.9
42.5°	1190.5	1176.1	1147.7	1129.6	1119.0
45°	1122.7	1110.2	1083.3	1063.8	1056.6
47.5°	1056.6	1044.1	1015.5	995.8	985.2
50°	986.9	978.0	953.0	928.1	919.1
52.5°	919.1	906.6	883.5	863.8	851.3
55°	849.6	838.9	817.4	796.0	787.1
57.5°	779.9	771.0	747.7	726.4	719.1
60°	710.3	703.3	678.3	658.5	653.3
62.5°	642.5	630.0	612.2	594.3	587.2
65°	573.0	562.2	544.4	528.3	519.4
67.5°	501.6	492.6	476.6	464.1	456.9
70°	435.5	428.3	412.2	399.7	392.8
72.5°	367.8	360.5	351.6	339.1	333.8
75°	299.7	296.3	287.2	276.7	280.3
77.5°	239.2	231.9	228.4	223.0	217.8
80°	178.6	176.7	173.1	167.8	164.2
82.5°	121.3	121.3	119.6	112.5	112.5
85°	73.1	71.4	69.6	64.2	62.5
87.5°	32.1	28.6	25.0	19.7	17.8
90°	2.2	26.2	71.4	67.0	69.2
92.5°	45.1	61.2	63.3	65.4	65.4
95°	106.3	126.6	130.2	130.2	126.6
97.5°	176.9	195.8	203.8	203.8	203.8
100°	258.3	275.0	280.9	280.9	278.7
102.5°	344.2	356.6	364.5	366.7	364.5
105°	438.1	443.9	448.3	451.9	451.9
107.5°	531.2	540.0	540.0	541.4	531.2
110°	621.4	633.1	633.1	633.1	627.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	718.9	731.3	729.1	723.3	718.9
115°	815.0	826.6	823.0	820.8	815.0
117.5°	910.3	926.3	916.1	910.3	904.5
120°	1006.4	1022.4	1006.4	1006.4	999.8
122.5°	1093.7	1114.1	1103.9	1098.1	1093.7
125°	1185.3	1203.6	1197.7	1191.2	1189.1
127.5°	1274.9	1297.4	1289.4	1280.7	1274.9
130°	1358.6	1384.7	1381.1	1376.8	1368.8
132.5°	1452.5	1472.8	1474.3	1464.1	1458.3
135°	1533.2	1555.8	1560.2	1558.0	1552.2
137.5°	1623.4	1641.6	1645.3	1643.8	1635.1
140°	1702.8	1720.9	1731.1	1731.1	1723.1
142.5°	1784.3	1802.5	1808.3	1810.5	1802.5
145°	1861.4	1875.9	1887.6	1889.8	1881.8
147.5°	1930.5	1948.7	1957.4	1961.1	1953.1
150°	2001.9	2014.2	2022.2	2028.8	2022.2
152.5°	2065.1	2077.5	2087.7	2095.7	2087.7
155°	2128.5	2134.3	2140.9	2151.0	2144.5
157.5°	2183.0	2187.4	2191.1	2205.6	2195.4
160°	2231.8	2236.2	2238.4	2250.7	2242.0
162.5°	2276.9	2276.9	2279.1	2292.9	2282.7
165°	2315.5	2313.3	2313.3	2327.9	2317.6
167.5°	2350.4	2343.9	2343.9	2358.4	2348.2
170°	2376.6	2370.8	2368.6	2383.2	2370.8
172.5°	2394.8	2389.0	2386.8	2401.3	2389.0
175°	2409.3	2403.5	2399.1	2413.7	2401.3
177.5°	2417.3	2411.5	2407.1	2419.5	2407.1
180°	2413.7	2413.7	2413.7	2413.7	2413.7

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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	7.52	8.31	8.55	9.34	10.73	7.09	7.87	8.12	8.91	10.30
	3H	9.17	9.88	10.21	10.93	12.34	8.70	9.41	9.74	10.45	11.86
	4H	9.76	10.43	10.81	11.48	12.89	9.29	9.95	10.34	11.00	12.42
	6H	10.16	10.77	11.22	11.82	13.25	9.68	10.30	10.74	11.35	12.78
	8H	10.26	10.85	11.32	11.91	13.34	9.78	10.37	10.85	11.44	12.86
	12H	10.30	10.86	11.38	11.92	13.37	9.82	10.38	10.89	11.44	12.89
4H	2H	7.97	8.64	9.03	9.69	11.11	7.63	8.30	8.68	9.34	10.76
	3H	9.83	10.39	10.90	11.47	12.90	9.44	10.00	10.50	11.07	12.50
	4H	10.54	11.06	11.62	12.12	13.58	10.14	10.65	11.21	11.72	13.17
	6H	11.06	11.50	12.14	12.59	14.03	10.65	11.09	11.73	12.18	13.62
	8H	11.20	11.62	12.29	12.70	14.16	10.79	11.20	11.87	12.29	13.75
	12H	11.27	11.65	12.37	12.74	14.21	10.85	11.22	11.95	12.32	13.79
8H	4H	10.74	11.15	11.82	12.23	13.69	10.38	10.79	11.46	11.87	13.33
	6H	11.36	11.70	12.47	12.83	14.29	11.00	11.34	12.11	12.47	13.93
	8H	11.59	11.88	12.70	12.99	14.47	11.22	11.51	12.33	12.62	14.10
	12H	11.71	11.98	12.83	13.08	14.60	11.33	11.59	12.44	12.69	14.21
12H	4H	10.72	11.09	11.82	12.18	13.65	10.37	10.74	11.46	11.83	13.30
	6H	11.39	11.69	12.50	12.80	14.28	11.04	11.34	12.15	12.45	13.93
	8H	11.63	11.90	12.75	13.00	14.52	11.28	11.54	12.39	12.64	14.16