

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: P908178

Luminaire Tested: DFN2DIP-HX4F0-060D040US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908178
REPORT IS A COMBINATION OF REPORTS P899303 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D040US840-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

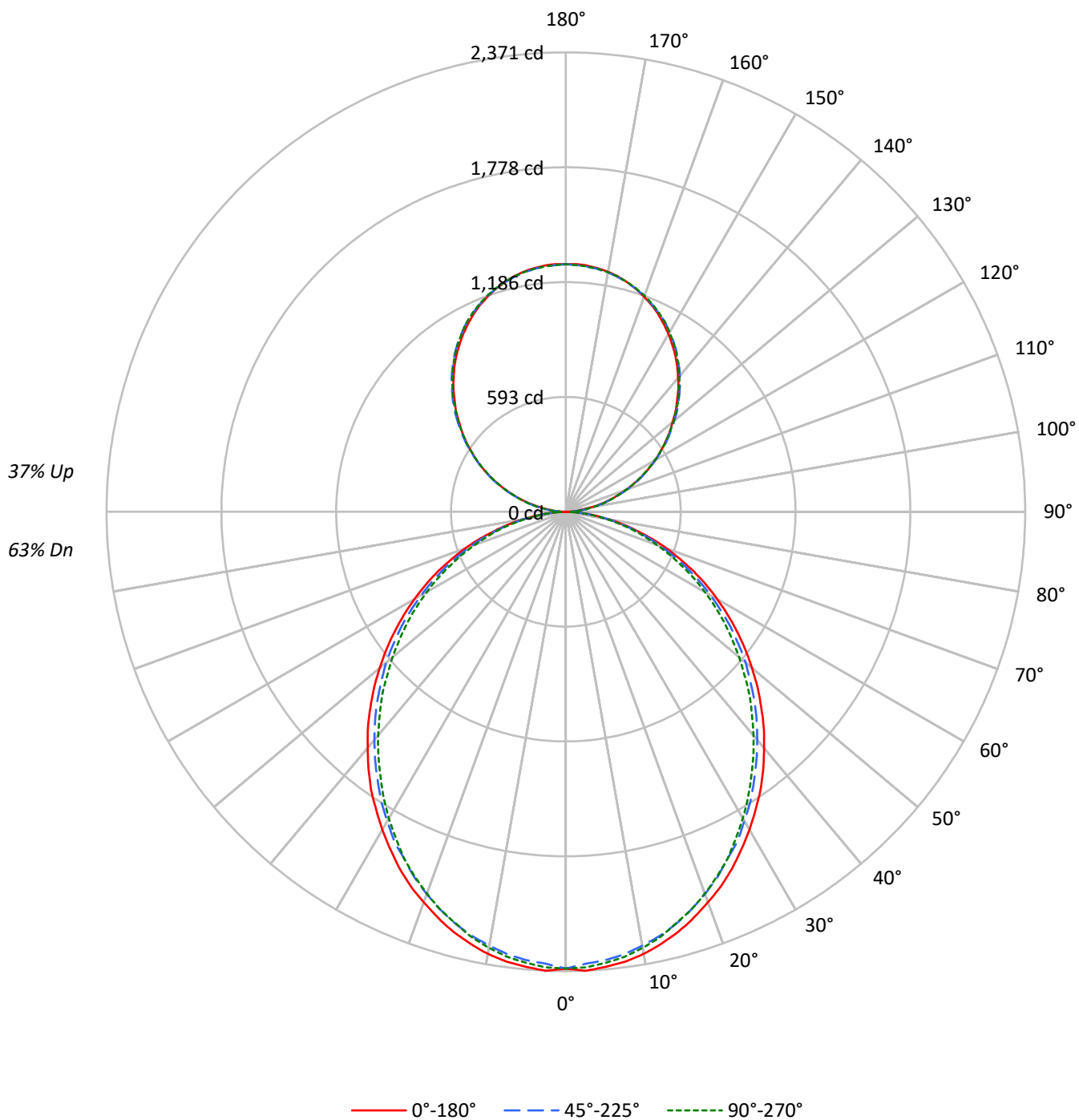
Lumens per Lamp: N/A
Luminaire Lumens: 9573.5 lumens
Efficiency: N/A
Efficacy: 122.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 77.9
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

TEST NUMBER: P908178

CATALOG NUMBER: DFN2DIP-HX4F0-060D040US840-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P908178

CATALOG NUMBER: DFN2DIP-HX4F0-060D040US840-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	110	110	110	110	103	103	103	103	90	90	90	79	79	79	68	68	68
1	101	96	92	89	94	90	87	84	79	77	74	69	67	66	60	59	57
2	92	84	78	72	86	79	73	69	70	65	62	61	58	55	53	50	48
3	84	74	66	60	78	70	63	58	61	56	52	54	50	46	47	44	41
4	77	66	57	51	71	62	54	49	55	49	44	48	43	40	42	38	35
5	70	58	50	44	66	55	48	42	49	43	38	43	38	35	38	34	31
6	65	53	44	38	61	50	42	37	44	38	33	39	34	30	34	30	27
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	31	27	24
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22
9	52	40	32	27	49	38	30	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	35	28	23	31	25	21	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1753	1753	1753
5°	1756	1729	1740
10°	1742	1706	1717
15°	1716	1678	1680
20°	1682	1639	1643
25°	1648	1592	1599
30°	1605	1549	1544
35°	1564	1498	1485
40°	1514	1447	1429
45°	1464	1395	1373
50°	1409	1341	1307
55°	1352	1278	1246
60°	1287	1204	1176
65°	1217	1127	1094
70°	1127	1033	1007
75°	1002	920	925
80°	853	777	770
85°	619	529	512

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1464 cd/sqm

TEST NUMBER: P908178

CATALOG NUMBER: DFN2DIP-HX4F0-060D040US840-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.9	2.3
10°-20°	624.4	6.5
20°-30°	917.5	9.6
30°-40°	1065.7	11.1
40°-50°	1064.4	11.1
50°-60°	928.1	9.7
60°-70°	686.1	7.2
70°-80°	388.2	4.1
80°-90°	106.1	1.1
90°-100°	79.1	0.8
100°-110°	251.2	2.6
110°-120°	429.8	4.5
120°-130°	565.3	5.9
130°-140°	634.5	6.6
140°-150°	622.2	6.5
150°-160°	522.0	5.5
160°-170°	346.2	3.6
170°-180°	121.0	1.3
0°-30°	1763.8	18.4
0°-40°	2829.5	29.6
0°-60°	4821.9	50.4
0°-90°	6002.2	62.7
90°-120°	760.1	7.9
90°-150°	2582.2	27.0
90°-180°	3571.0	37.3
0°-180°	9573.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2358	2358	2358	2358	2358	
5°	2358	2349	2324	2342	2337	224
15°	2244	2231	2201	2210	2199	632
25°	2031	2013	1975	1979	1975	935
35°	1752	1730	1694	1680	1668	1094
45°	1426	1410	1376	1351	1342	1101
55°	1079	1066	1038	1011	1000	965
65°	728	714	692	671	660	720
75°	381	376	365	351	356	406
85°	93	91	88	82	79	104
90°	1	14	38	35	37	9
95°	56	67	69	69	67	63
105°	232	235	237	239	239	245
115°	431	438	436	434	431	427
125°	627	637	634	630	629	561
135°	812	823	826	825	822	627
145°	985	993	999	1000	996	616
155°	1126	1130	1133	1138	1135	519
165°	1226	1224	1224	1232	1227	346
175°	1275	1272	1270	1278	1271	121
180°	1278	1278	1278	1278	1278	

TEST NUMBER: P908178

CATALOG NUMBER: DFN2DIP-HX4F0-060D040US840-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2357.6	2357.6	2357.6	2357.6	2357.6
2.5°	2371.4	2360.1	2335.0	2357.6	2353.3
5°	2357.6	2348.7	2323.7	2341.8	2337.4
7.5°	2341.8	2328.3	2303.3	2321.6	2317.0
10°	2317.0	2301.2	2273.9	2292.0	2285.2
12.5°	2282.9	2269.4	2242.2	2253.5	2249.0
15°	2244.3	2230.9	2201.3	2210.5	2199.2
17.5°	2196.8	2183.3	2153.7	2164.9	2153.7
20°	2144.6	2131.1	2099.3	2106.1	2097.2
22.5°	2092.6	2072.1	2042.6	2042.6	2038.0
25°	2031.2	2013.3	1974.7	1979.0	1974.7
27.5°	1963.2	1947.3	1917.9	1911.3	1900.0
30°	1895.4	1877.0	1843.2	1836.4	1827.3
32.5°	1822.7	1809.3	1772.9	1759.2	1750.1
35°	1752.5	1729.9	1693.5	1679.8	1668.5
37.5°	1673.1	1652.6	1616.4	1600.4	1589.1
40°	1591.5	1573.3	1537.0	1516.8	1507.6
42.5°	1512.2	1493.9	1457.8	1435.0	1421.5
45°	1426.1	1410.2	1376.0	1351.3	1342.1
47.5°	1342.1	1326.3	1290.0	1265.0	1251.4
50°	1253.6	1242.3	1210.6	1178.8	1167.5
52.5°	1167.5	1151.7	1122.3	1097.3	1081.5
55°	1079.2	1065.5	1038.3	1011.2	999.9
57.5°	990.8	979.5	949.9	922.7	913.5
60°	902.2	893.3	861.6	836.6	829.8
62.5°	816.1	800.2	777.6	755.0	745.9
65°	727.8	714.2	691.6	671.1	659.7
67.5°	637.1	625.6	605.4	589.6	580.4
70°	553.2	544.1	523.6	507.8	498.9
72.5°	467.1	458.0	446.7	430.8	424.0
75°	380.7	376.5	364.9	351.4	356.0
77.5°	303.8	294.7	290.0	283.4	276.6
80°	226.8	224.4	219.8	213.1	208.5
82.5°	154.2	154.2	152.0	142.9	142.9
85°	92.8	90.7	88.5	81.5	79.4
87.5°	40.9	36.4	31.7	25.0	22.6
90°	1.1	13.8	37.8	35.4	36.6
92.5°	23.8	32.3	33.5	34.6	34.6
95°	56.2	67.1	69.0	69.0	67.1
97.5°	93.6	103.6	107.9	107.9	107.9
100°	136.7	145.6	148.7	148.7	147.5
102.5°	182.2	188.7	193.0	194.1	193.0
105°	231.9	234.9	237.2	239.1	239.1
107.5°	281.1	285.8	285.8	286.5	281.1
110°	328.9	335.1	335.1	335.1	332.0

TEST NUMBER: P908178

CATALOG NUMBER: DFN2DIP-HX4F0-060D040US840-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	380.5	387.1	385.9	382.8	380.5
115°	431.3	437.6	435.6	434.4	431.3
117.5°	481.8	490.3	484.9	481.8	478.8
120°	532.7	541.1	532.7	532.7	529.2
122.5°	578.9	589.7	584.3	581.2	578.9
125°	627.4	637.0	634.0	630.5	629.3
127.5°	674.8	686.7	682.5	677.8	674.8
130°	719.0	733.0	731.0	728.7	724.5
132.5°	768.7	779.5	780.3	774.9	771.8
135°	811.5	823.4	825.8	824.6	821.5
137.5°	859.3	868.9	870.8	870.0	865.5
140°	901.2	910.9	916.3	916.3	912.0
142.5°	944.4	954.0	957.0	958.3	954.0
145°	985.2	992.9	999.1	1000.3	996.0
147.5°	1021.8	1031.4	1036.0	1037.9	1033.7
150°	1059.6	1066.1	1070.4	1073.8	1070.4
152.5°	1093.1	1099.5	1105.0	1109.2	1105.0
155°	1126.5	1129.6	1133.1	1138.5	1135.0
157.5°	1155.5	1157.7	1159.6	1167.4	1162.0
160°	1181.2	1183.6	1184.7	1191.2	1186.6
162.5°	1205.1	1205.1	1206.3	1213.6	1208.2
165°	1225.6	1224.4	1224.4	1232.0	1226.7
167.5°	1244.1	1240.5	1240.5	1248.3	1242.8
170°	1257.9	1254.8	1253.6	1261.3	1254.8
172.5°	1267.5	1264.5	1263.2	1271.0	1264.5
175°	1275.3	1272.1	1269.8	1277.5	1271.0
177.5°	1279.5	1276.4	1274.0	1280.6	1274.0
180°	1277.5	1277.5	1277.5	1277.5	1277.5

TEST NUMBER: P908178

CATALOG NUMBER: DFN2DIP-HX4F0-060D040US840-FLLFLL

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	10.32	11.31	11.16	12.17	13.25	9.89	10.87	10.73	11.74	12.81
	3H	11.99	12.88	12.84	13.75	14.85	11.52	12.40	12.37	13.27	14.38
	4H	12.58	13.42	13.45	14.30	15.41	12.11	12.95	12.98	13.83	14.94
	6H	12.99	13.76	13.87	14.65	15.78	12.51	13.29	13.39	14.17	15.30
	8H	13.10	13.84	13.99	14.74	15.87	12.62	13.36	13.51	14.26	15.39
	12H	13.15	13.85	14.05	14.75	15.90	12.67	13.37	13.57	14.27	15.42
4H	2H	10.80	11.63	11.67	12.51	13.63	10.45	11.29	11.32	12.17	13.28
	3H	12.67	13.37	13.56	14.28	15.41	12.28	12.98	13.17	13.89	15.02
	4H	13.39	14.03	14.29	14.94	16.10	12.99	13.63	13.88	14.53	15.69
	6H	13.92	14.47	14.83	15.40	16.56	13.51	14.06	14.42	14.99	16.15
	8H	14.07	14.59	14.98	15.51	16.68	13.66	14.17	14.57	15.10	16.27
	12H	14.15	14.62	15.08	15.56	16.74	13.73	14.19	14.66	15.14	16.31
8H	4H	13.60	14.12	14.52	15.04	16.21	13.24	13.76	14.16	14.68	15.85
	6H	14.24	14.67	15.18	15.63	16.80	13.88	14.30	14.82	15.27	16.44
	8H	14.46	14.84	15.41	15.80	16.99	14.09	14.47	15.04	15.43	16.62
	12H	14.60	14.93	15.55	15.88	17.12	14.22	14.55	15.17	15.50	16.74
12H	4H	13.59	14.06	14.53	15.00	16.18	13.24	13.71	14.17	14.65	15.83
	6H	14.27	14.65	15.22	15.61	16.80	13.92	14.30	14.87	15.25	16.44
	8H	14.52	14.85	15.47	15.80	17.04	14.16	14.50	15.12	15.45	16.68

END OF REPORT