

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: P913604

Luminaire Tested: DFN2DIP-HX4F0-040D070US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913604
REPORT IS A COMBINATION OF REPORTS P899353 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D070US927-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

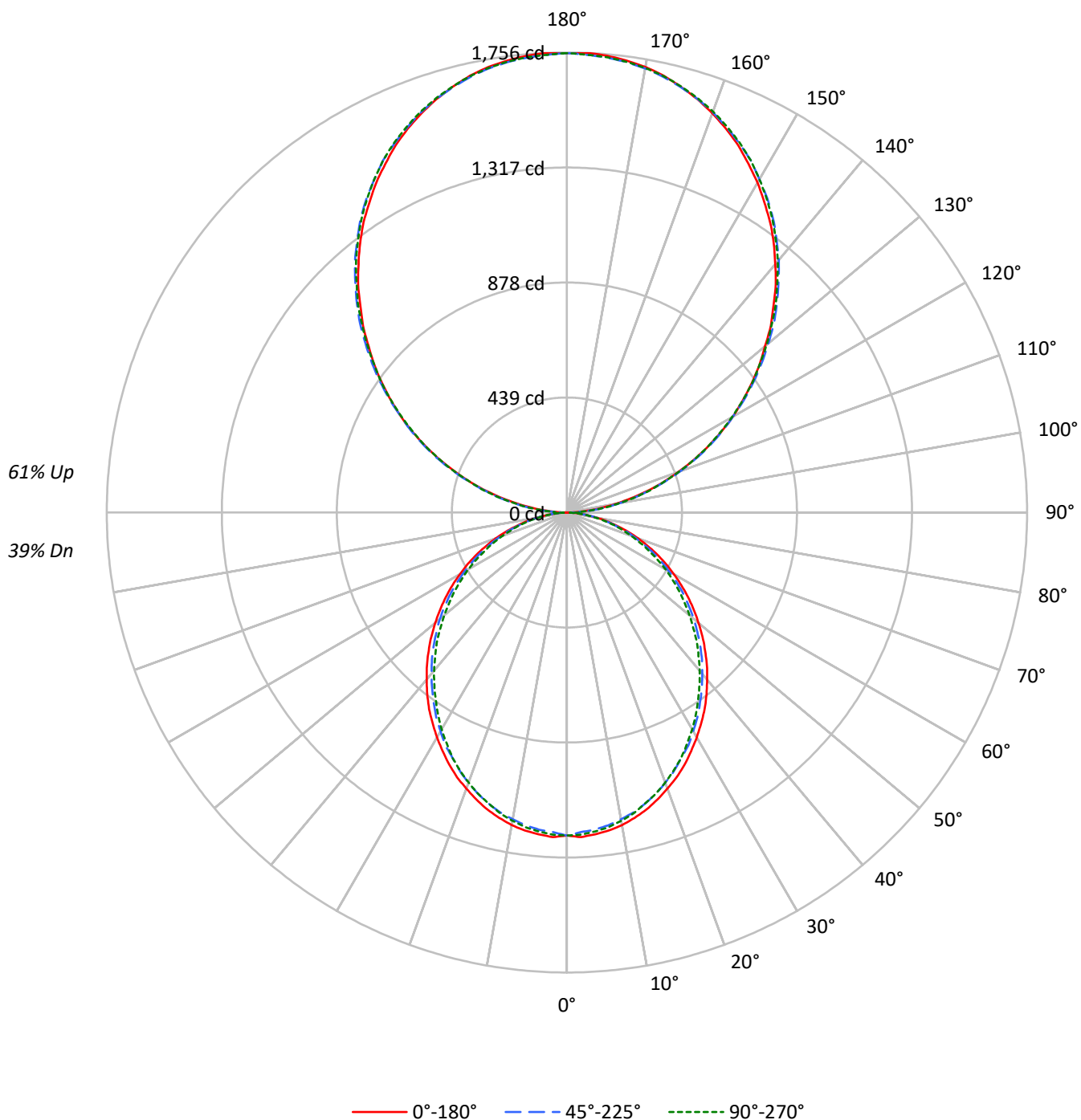
Lumens per Lamp: N/A
Luminaire Lumens: 8044.6 lumens
Efficiency: N/A
Efficacy: 110.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 72.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P913604

CATALOG NUMBER: DFN2DIP-HX4F0-040D070US927-FLLFLL

Luminous Intensity Polar Plot



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CATALOG NUMBER: DFN2DIP-HX4F0-040D070US927-FLLFLL

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	95	95	95	95	77	77	77	61	61	61	46	46	46
1	95	91	87	84	86	83	80	77	68	65	63	54	52	51	41	40	39
2	87	79	73	68	79	72	67	63	59	56	52	47	45	42	36	34	33
3	79	70	63	57	72	64	58	53	52	48	44	42	38	36	32	30	28
4	72	62	54	48	65	56	50	44	46	41	37	37	33	31	28	26	24
5	66	55	47	41	60	50	43	38	41	36	32	33	29	27	26	23	21
6	61	49	41	36	55	45	38	33	37	32	28	30	26	23	23	20	18
7	56	44	37	31	51	41	34	29	34	28	25	27	23	20	21	18	16
8	52	40	33	27	47	37	30	26	31	26	22	25	21	18	19	17	15
9	49	37	29	24	44	34	27	23	28	23	19	23	19	16	18	15	13
10	45	34	26	22	41	31	25	20	26	21	18	21	17	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	917	917	917
5°	918	904	910
10°	911	892	898
15°	898	877	879
20°	880	857	859
25°	862	833	836
30°	839	810	807
35°	818	784	777
40°	792	756	748
45°	766	730	718
50°	737	701	683
55°	707	668	652
60°	673	629	615
65°	636	589	573
70°	589	540	526
75°	524	481	484
80°	446	406	403
85°	324	277	268

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1322 cd/sqm

TEST NUMBER: P913604

CATALOG NUMBER: DFN2DIP-HX4F0-040D070US927-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	116.0	1.4
10°-20°	326.5	4.1
20°-30°	479.8	6.0
30°-40°	557.3	6.9
40°-50°	556.6	6.9
50°-60°	485.3	6.0
60°-70°	358.8	4.5
70°-80°	203.0	2.5
80°-90°	58.6	0.7
90°-100°	108.5	1.3
100°-110°	344.8	4.3
110°-120°	590.1	7.3
120°-130°	776.1	9.6
130°-140°	871.1	10.8
140°-150°	854.2	10.6
150°-160°	716.6	8.9
160°-170°	475.2	5.9
170°-180°	166.1	2.1
0°-30°	922.4	11.5
0°-40°	1479.7	18.4
0°-60°	2521.7	31.3
0°-90°	3142.0	39.1
90°-120°	1043.4	13.0
90°-150°	3544.8	44.1
90°-180°	4903.0	60.9
0°-180°	8044.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1233	1233	1233	1233	1233	
5°	1233	1228	1215	1225	1222	117
15°	1174	1167	1151	1156	1150	331
25°	1062	1053	1033	1035	1033	489
35°	916	905	886	878	873	572
45°	746	738	720	707	702	576
55°	564	557	543	529	523	505
65°	381	373	362	351	345	376
75°	199	197	191	184	186	213
85°	49	48	46	43	42	54
90°	2	19	52	49	50	8
95°	77	92	95	95	92	86
105°	318	322	326	328	328	336
115°	592	601	598	596	592	586
125°	861	874	870	866	864	770
135°	1114	1130	1134	1132	1128	861
145°	1352	1363	1372	1373	1367	845
155°	1546	1551	1556	1563	1558	712
165°	1682	1681	1681	1691	1684	475
175°	1751	1746	1743	1754	1745	166
180°	1754	1754	1754	1754	1754	

TEST NUMBER: P913604

CATALOG NUMBER: DFN2DIP-HX4F0-040D070US927-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1233.0	1233.0	1233.0	1233.0	1233.0
2.5°	1240.2	1234.2	1221.1	1233.0	1230.7
5°	1233.0	1228.3	1215.2	1224.6	1222.4
7.5°	1224.6	1217.6	1204.5	1214.1	1211.7
10°	1211.7	1203.4	1189.2	1198.6	1195.1
12.5°	1193.8	1186.8	1172.6	1178.5	1176.1
15°	1173.7	1166.6	1151.2	1156.0	1150.1
17.5°	1148.8	1141.8	1126.3	1132.2	1126.3
20°	1121.5	1114.4	1097.9	1101.4	1096.8
22.5°	1094.3	1083.6	1068.2	1068.2	1065.8
25°	1062.2	1052.8	1032.7	1035.0	1032.7
27.5°	1026.7	1018.3	1003.1	999.5	993.6
30°	991.2	981.7	963.9	960.4	955.6
32.5°	953.2	946.2	927.2	920.0	915.2
35°	916.5	904.7	885.7	878.5	872.6
37.5°	875.0	864.3	845.3	837.0	831.1
40°	832.3	822.8	803.7	793.2	788.5
42.5°	790.8	781.2	762.4	750.4	743.4
45°	745.8	737.5	719.6	706.7	701.9
47.5°	701.9	693.6	674.6	661.6	654.5
50°	655.6	649.7	633.1	616.5	610.5
52.5°	610.5	602.3	586.9	573.9	565.5
55°	564.4	557.2	543.0	528.8	522.9
57.5°	518.1	512.2	496.7	482.5	477.8
60°	471.8	467.1	450.6	437.5	434.0
62.5°	426.8	418.5	406.7	394.8	390.1
65°	380.6	373.4	361.6	350.9	345.1
67.5°	333.2	327.2	316.6	308.3	303.6
70°	289.3	284.6	273.9	265.5	260.9
72.5°	244.3	239.5	233.6	225.3	221.7
75°	199.2	196.9	190.8	183.8	186.2
77.5°	158.8	154.1	151.7	148.1	144.7
80°	118.6	117.3	114.9	111.5	109.1
82.5°	80.6	80.6	79.5	74.7	74.7
85°	48.6	47.5	46.3	42.6	41.5
87.5°	21.4	19.0	16.6	13.1	11.8
90°	1.6	19.0	51.8	48.6	50.2
92.5°	32.8	44.4	46.0	47.6	47.6
95°	77.2	92.0	94.7	94.7	92.0
97.5°	128.5	142.2	148.1	148.1	148.1
100°	187.7	199.9	204.1	204.1	202.5
102.5°	250.1	259.0	264.9	266.5	264.9
105°	318.3	322.5	325.7	328.4	328.4
107.5°	386.0	392.3	392.3	393.4	386.0
110°	451.5	460.0	460.0	460.0	455.7

TEST NUMBER: P913604

CATALOG NUMBER: DFN2DIP-HX4F0-040D070US927-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	522.4	531.4	529.8	525.5	522.4
115°	592.2	600.6	598.0	596.4	592.2
117.5°	661.4	673.0	665.7	661.4	657.2
120°	731.2	742.8	731.2	731.2	726.4
122.5°	794.6	809.5	802.1	797.8	794.6
125°	861.3	874.5	870.3	865.5	864.0
127.5°	926.3	942.7	936.9	930.6	926.3
130°	987.1	1006.1	1003.5	1000.4	994.5
132.5°	1055.3	1070.2	1071.2	1063.8	1059.5
135°	1114.0	1130.4	1133.6	1131.9	1127.7
137.5°	1179.6	1192.8	1195.4	1194.4	1188.0
140°	1237.2	1250.5	1257.8	1257.8	1252.0
142.5°	1296.4	1309.6	1313.8	1315.4	1309.6
145°	1352.5	1363.0	1371.5	1373.1	1367.3
147.5°	1402.7	1415.9	1422.3	1424.9	1419.1
150°	1454.5	1463.5	1469.3	1474.1	1469.3
152.5°	1500.5	1509.5	1516.9	1522.7	1516.9
155°	1546.5	1550.7	1555.5	1562.9	1558.1
157.5°	1586.2	1589.4	1592.0	1602.6	1595.1
160°	1621.6	1624.8	1626.3	1635.3	1629.0
162.5°	1654.4	1654.4	1656.0	1666.0	1658.6
165°	1682.4	1680.8	1680.8	1691.4	1683.9
167.5°	1707.8	1703.0	1703.0	1713.6	1706.2
170°	1726.8	1722.6	1721.0	1731.5	1722.6
172.5°	1740.0	1735.7	1734.2	1744.8	1735.7
175°	1750.6	1746.4	1743.2	1753.7	1744.8
177.5°	1756.4	1752.1	1749.0	1758.0	1749.0
180°	1753.7	1753.7	1753.7	1753.7	1753.7

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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	5.86	6.63	6.91	7.69	9.11	5.43	6.20	6.48	7.25	8.67
	3H	7.52	8.21	8.57	9.27	10.71	7.05	7.74	8.10	8.80	10.23
	4H	8.10	8.76	9.17	9.82	11.26	7.63	8.28	8.70	9.35	10.79
	6H	8.50	9.10	9.57	10.17	11.62	8.02	8.63	9.10	9.69	11.15
	8H	8.60	9.17	9.68	10.26	11.71	8.13	8.70	9.21	9.78	11.23
	12H	8.65	9.19	9.73	10.27	11.74	8.17	8.71	9.25	9.79	11.26
4H	2H	6.31	6.97	7.39	8.03	9.48	5.97	6.63	7.04	7.69	9.13
	3H	8.17	8.72	9.26	9.81	11.27	7.78	8.33	8.86	9.42	10.87
	4H	8.89	9.39	9.97	10.47	11.95	8.48	8.98	9.57	10.06	11.54
	6H	9.40	9.83	10.49	10.93	12.40	8.99	9.42	10.08	10.52	11.99
	8H	9.54	9.95	10.64	11.04	12.53	9.13	9.53	10.23	10.63	12.12
	12H	9.61	9.98	10.73	11.09	12.58	9.19	9.56	10.30	10.66	12.16
8H	4H	9.08	9.48	10.17	10.57	12.06	8.71	9.12	9.81	10.21	11.70
	6H	9.70	10.04	10.82	11.17	12.66	9.34	9.67	10.46	10.81	12.30
	8H	9.92	10.22	11.05	11.33	12.84	9.56	9.85	10.68	10.96	12.47
	12H	10.05	10.31	11.18	11.42	12.97	9.67	9.92	10.80	11.04	12.58
12H	4H	9.06	9.42	10.17	10.53	12.02	8.70	9.07	9.82	10.18	11.67
	6H	9.73	10.03	10.86	11.14	12.65	9.38	9.67	10.51	10.79	12.30
	8H	9.97	10.23	11.10	11.34	12.89	9.61	9.87	10.74	10.99	12.53