

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: P913612

Luminaire Tested: DFN2DIP-HX4F0-040D110US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913612
REPORT IS A COMBINATION OF REPORTS P899425 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D110US927-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

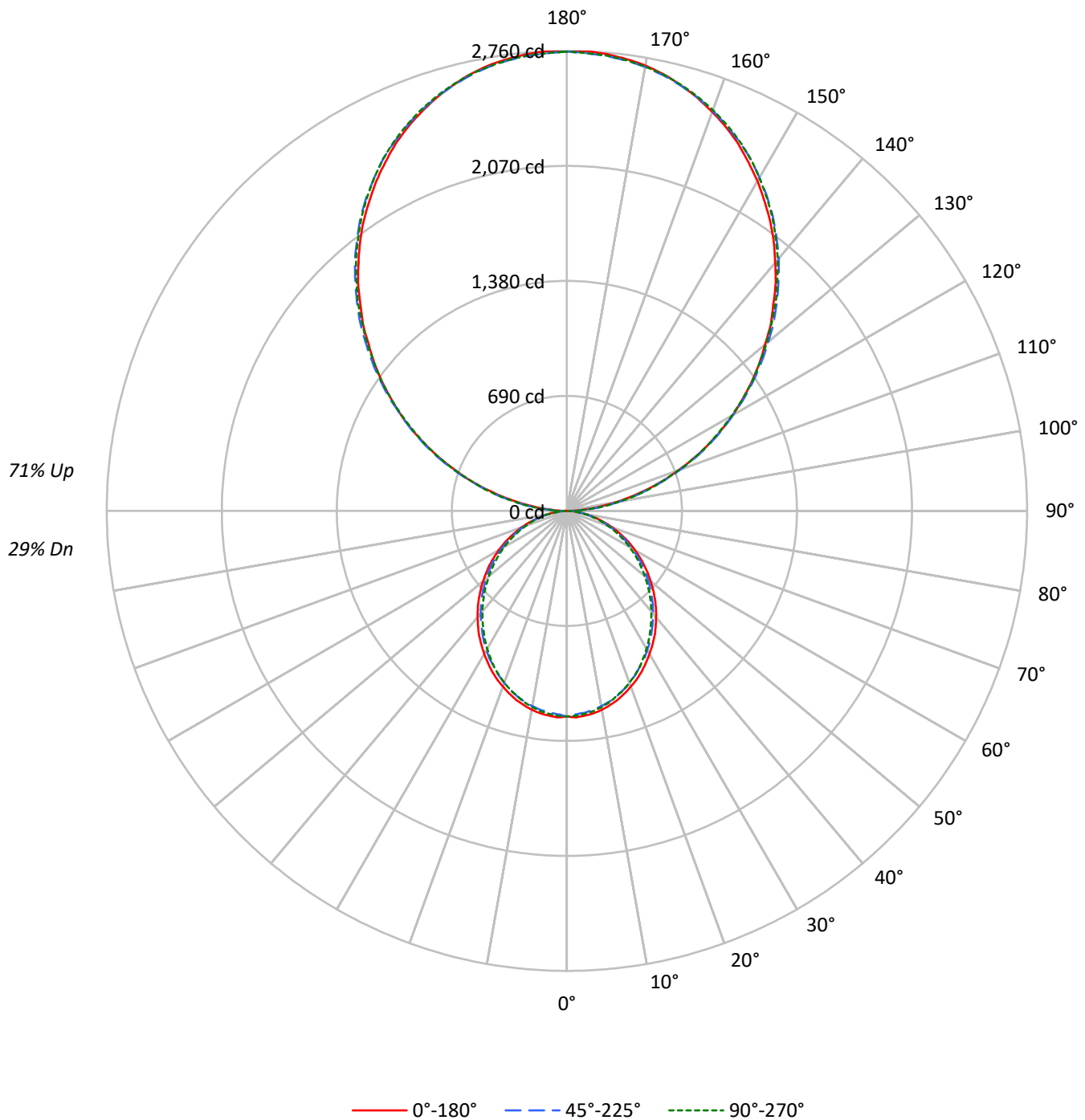
Lumens per Lamp: N/A
Luminaire Lumens: 10848.9 lumens
Efficiency: N/A
Efficacy: 110.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 98.5
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: P913612

CATALOG NUMBER: DFN2DIP-HX4F0-040D110US927-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P913612

CATALOG NUMBER: DFN2DIP-HX4F0-040D110US927-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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	37	37	37
1	93	89	85	82	83	80	77	74	63	61	59	47	46	44	32	32	31
2	85	78	72	67	76	70	65	60	55	51	48	41	39	37	29	27	26
3	77	68	61	55	69	61	55	50	48	44	41	36	34	31	25	24	22
4	71	60	53	47	63	54	48	43	43	38	35	32	29	27	23	21	19
5	65	53	46	40	58	48	41	36	38	33	30	29	26	23	20	18	17
6	59	48	40	34	53	43	36	31	34	29	26	26	23	20	18	16	15
7	55	43	35	30	49	39	32	27	31	26	23	24	20	18	17	15	13
8	51	39	31	26	45	35	29	24	28	23	20	22	18	16	15	13	12
9	47	35	28	23	42	32	26	21	26	21	18	20	16	14	14	12	10
10	44	32	25	21	39	29	23	19	24	19	16	18	15	13	13	11	9

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: 2077 cd/sqm

TEST NUMBER: P913612

CATALOG NUMBER: DFN2DIP-HX4F0-040D110US927-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	116.0	1.1
10°-20°	326.5	3.0
20°-30°	479.8	4.4
30°-40°	557.3	5.1
40°-50°	556.6	5.1
50°-60°	485.3	4.5
60°-70°	358.8	3.3
70°-80°	203.0	1.9
80°-90°	61.4	0.6
90°-100°	170.5	1.6
100°-110°	541.8	5.0
110°-120°	927.3	8.5
120°-130°	1219.5	11.2
130°-140°	1368.8	12.6
140°-150°	1342.3	12.4
150°-160°	1126.0	10.4
160°-170°	746.7	6.9
170°-180°	261.0	2.4
0°-30°	922.4	8.5
0°-40°	1479.7	13.6
0°-60°	2521.7	23.2
0°-90°	3144.9	29.0
90°-120°	1639.7	15.1
90°-150°	5570.3	51.3
90°-180°	7704.0	71.0
0°-180°	10848.9	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	30	81	76	79	11
95°	121	145	149	149	145	135
105°	500	507	512	516	516	528
115°	931	944	940	937	931	920
125°	1353	1374	1368	1360	1358	1209
135°	1751	1776	1781	1779	1772	1353
145°	2125	2142	2155	2158	2149	1328
155°	2430	2437	2444	2456	2448	1119
165°	2644	2641	2641	2658	2646	746
175°	2751	2744	2739	2756	2742	261
180°	2756	2756	2756	2756	2756	

TEST NUMBER: P913612

CATALOG NUMBER: DFN2DIP-HX4F0-040D110US927-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°	2.5	29.9	81.4	76.4	78.9
92.5°	51.5	69.8	72.2	74.8	74.8
95°	121.3	144.6	148.7	148.7	144.6
97.5°	201.9	223.5	232.7	232.7	232.7
100°	294.9	314.0	320.7	320.7	318.2
102.5°	393.0	407.1	416.3	418.7	416.3
105°	500.2	506.8	511.8	515.9	515.9
107.5°	606.5	616.5	616.5	618.1	606.5
110°	709.6	722.9	722.9	722.9	716.2

TEST NUMBER: P913612

CATALOG NUMBER: DFN2DIP-HX4F0-040D110US927-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	820.9	835.0	832.5	825.8	820.9
115°	930.6	943.8	939.7	937.2	930.6
117.5°	1039.4	1057.6	1046.0	1039.4	1032.8
120°	1149.1	1167.4	1149.1	1149.1	1141.6
122.5°	1248.8	1272.0	1260.4	1253.7	1248.8
125°	1353.4	1374.2	1367.5	1360.1	1357.6
127.5°	1455.6	1481.4	1472.3	1462.3	1455.6
130°	1551.2	1581.1	1576.9	1571.9	1562.8
132.5°	1658.4	1681.6	1683.3	1671.7	1665.0
135°	1750.6	1776.3	1781.3	1778.8	1772.2
137.5°	1853.6	1874.4	1878.5	1876.8	1866.9
140°	1944.2	1964.9	1976.6	1976.6	1967.5
142.5°	2037.3	2058.0	2064.7	2067.1	2058.0
145°	2125.3	2141.9	2155.2	2157.7	2148.6
147.5°	2204.2	2225.0	2235.0	2239.1	2230.0
150°	2285.7	2299.8	2308.9	2316.4	2308.9
152.5°	2357.9	2372.0	2383.7	2392.9	2383.7
155°	2430.3	2436.8	2444.4	2456.0	2448.5
157.5°	2492.5	2497.5	2501.6	2518.3	2506.6
160°	2548.2	2553.2	2555.7	2569.8	2559.9
162.5°	2599.7	2599.7	2602.2	2618.0	2606.4
165°	2643.7	2641.2	2641.2	2657.8	2646.2
167.5°	2683.6	2676.1	2676.1	2692.8	2681.1
170°	2713.5	2706.9	2704.4	2721.0	2706.9
172.5°	2734.3	2727.6	2725.2	2741.8	2727.6
175°	2750.9	2744.3	2739.3	2755.9	2741.8
177.5°	2760.0	2753.4	2748.4	2762.6	2748.4
180°	2755.9	2755.9	2755.9	2755.9	2755.9



TEST NUMBER: P913612

CATALOG NUMBER: DFN2DIP-HX4F0-040D110US927-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	4.61	5.31	5.73	6.43	7.97	4.18	4.88	5.30	5.99	7.54
	3H	6.26	6.89	7.39	8.01	9.57	5.79	6.42	6.92	7.54	9.10
	4H	6.84	7.44	7.98	8.56	10.12	6.37	6.96	7.51	8.09	9.65
	6H	7.24	7.78	8.38	8.91	10.48	6.76	7.31	7.90	8.43	10.01
	8H	7.34	7.86	8.48	9.00	10.56	6.86	7.38	8.01	8.52	10.09
	12H	7.38	7.87	8.53	9.01	10.60	6.90	7.39	8.05	8.53	10.12
4H	2H	5.06	5.65	6.20	6.77	8.34	4.71	5.31	5.85	6.43	7.99
	3H	6.91	7.40	8.06	8.55	10.13	6.51	7.01	7.66	8.16	9.74
	4H	7.62	8.07	8.77	9.21	10.81	7.21	7.67	8.36	8.80	10.40
	6H	8.12	8.51	9.28	9.67	11.26	7.71	8.10	8.87	9.26	10.85
	8H	8.27	8.63	9.43	9.79	11.39	7.86	8.22	9.01	9.37	10.98
	12H	8.34	8.67	9.51	9.83	11.44	7.91	8.24	9.09	9.41	11.01
8H	4H	7.80	8.17	8.96	9.32	10.92	7.44	7.81	8.60	8.96	10.56
	6H	8.43	8.73	9.60	9.92	11.52	8.06	8.36	9.24	9.56	11.16
	8H	8.65	8.91	9.83	10.08	11.70	8.28	8.54	9.46	9.71	11.33
	12H	8.77	9.00	9.96	10.17	11.82	8.39	8.62	9.57	9.79	11.44
12H	4H	7.78	8.11	8.95	9.27	10.88	7.43	7.76	8.60	8.92	10.53
	6H	8.45	8.72	9.64	9.89	11.51	8.10	8.37	9.29	9.54	11.16
	8H	8.69	8.92	9.88	10.09	11.74	8.33	8.56	9.52	9.73	11.39

END OF REPORT