

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: P928204

Luminaire Tested: DFN2DIP-HX4F0-050D040US927-FLLONL

Issue Date: 12/12/2024

**Test Information**

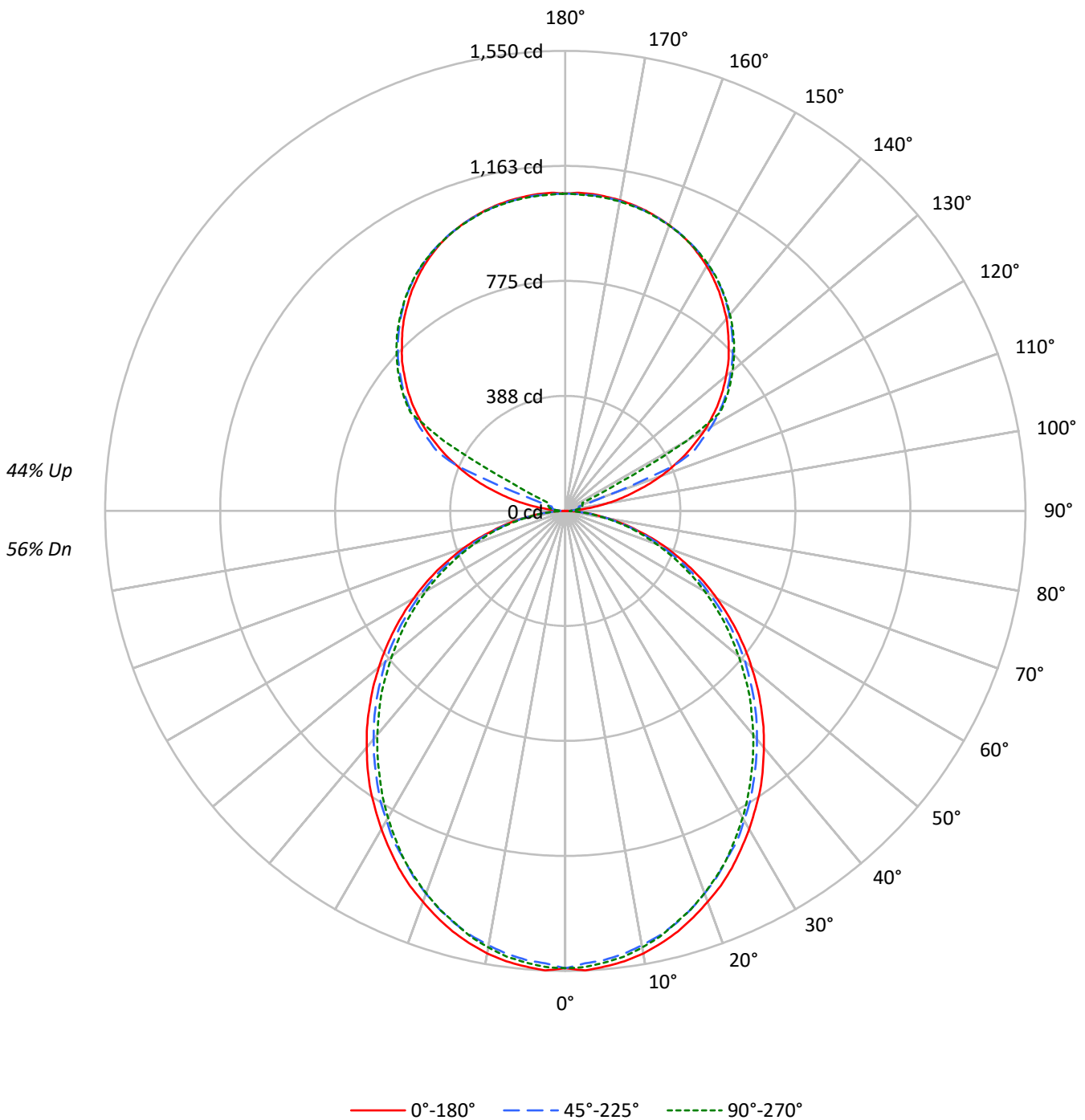
Test Method: LM-79-2019  
Report Number: P928204  
REPORT IS A COMBINATION OF REPORTS P900821 AND P896187  
Test Lab: INNOVATION CENTER  
Issue Date: 12/12/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX4F0-050D040US927-FLLONL  
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7056.7 lumens  
Efficiency: N/A  
Efficacy: 95.6 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): 73.8  
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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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				20	
RC	80				70				50				30				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	56
1	99	95	91	87	92	88	85	82	76	73	71	65	63	61	54	53	52	47
2	90	83	76	71	84	77	72	67	66	62	59	57	54	51	48	46	44	39
3	82	73	65	59	76	68	61	56	59	54	50	50	46	43	42	39	37	33
4	75	64	56	50	70	60	53	48	52	47	42	45	40	37	38	35	32	29
5	69	57	49	43	64	54	46	41	47	41	36	40	36	32	34	31	28	25
6	64	52	43	37	59	48	41	36	42	36	32	36	32	28	31	27	25	22
7	59	47	39	33	55	44	36	31	38	32	28	33	28	25	28	25	22	19
8	55	42	34	29	51	40	33	28	35	29	25	30	26	22	26	22	20	17
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	18	16
10	48	35	28	23	44	33	27	22	29	24	20	26	21	18	22	19	16	14

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1146	1146	1146
5°	1148	1130	1137
10°	1138	1115	1122
15°	1122	1097	1098
20°	1099	1071	1073
25°	1077	1041	1045
30°	1049	1012	1009
35°	1022	979	971
40°	989	945	934
45°	957	912	897
50°	921	876	854
55°	884	835	814
60°	841	787	769
65°	795	736	715
70°	736	675	658
75°	655	602	605
80°	558	508	503
85°	405	346	335

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 957 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	145.0	2.1
10°-20°	408.0	5.8
20°-30°	599.7	8.5
30°-40°	696.5	9.9
40°-50°	695.6	9.9
50°-60°	606.6	8.6
60°-70°	448.4	6.4
70°-80°	253.7	3.6
80°-90°	68.8	1.0
90°-100°	35.2	0.5
100°-110°	131.4	1.9
110°-120°	348.6	4.9
120°-130°	578.1	8.2
130°-140°	614.1	8.7
140°-150°	570.7	8.1
150°-160°	458.8	6.5
160°-170°	295.7	4.2
170°-180°	101.8	1.4
0°-30°	1152.7	16.3
0°-40°	1849.2	26.2
0°-60°	3151.4	44.7
0°-90°	3922.3	55.6
90°-120°	515.2	7.3
90°-150°	2278.1	32.3
90°-180°	3134.0	44.4
0°-180°	7056.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1541	1541	1541	1541	1541	
5°	1541	1535	1519	1530	1528	146
15°	1467	1458	1439	1445	1437	413
25°	1328	1316	1291	1293	1291	611
35°	1145	1131	1107	1098	1090	715
45°	932	922	899	883	877	719
55°	705	696	679	661	654	631
65°	476	467	452	439	431	470
75°	249	246	238	230	233	266
85°	61	59	58	53	52	68
90°	1	9	15	19	21	7
95°	50	25	30	34	33	59
105°	235	258	47	56	59	251
115°	445	458	477	119	64	438
125°	629	639	654	659	662	561
135°	778	791	798	805	804	601
145°	903	902	915	921	917	565
155°	994	987	996	1001	995	458
165°	1048	1043	1045	1051	1045	296
175°	1071	1066	1068	1073	1065	102
180°	1069	1069	1069	1069	1069	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1540.8	1540.8	1540.8	1540.8	1540.8
2.5°	1549.8	1542.4	1526.1	1540.8	1538.1
5°	1540.8	1535.1	1518.7	1530.5	1527.7
7.5°	1530.5	1521.7	1505.4	1517.3	1514.3
10°	1514.3	1503.9	1486.2	1497.9	1493.6
12.5°	1492.0	1483.2	1465.4	1472.8	1469.8
15°	1466.8	1458.0	1438.7	1444.7	1437.2
17.5°	1435.7	1426.9	1407.5	1414.9	1407.5
20°	1401.6	1392.8	1372.1	1376.4	1370.6
22.5°	1367.6	1354.2	1334.9	1334.9	1331.9
25°	1327.6	1315.7	1290.6	1293.4	1290.6
27.5°	1283.0	1272.7	1253.5	1249.1	1241.7
30°	1238.7	1226.8	1204.6	1200.2	1194.3
32.5°	1191.2	1182.5	1158.7	1149.7	1143.8
35°	1145.3	1130.6	1106.8	1097.9	1090.5
37.5°	1093.4	1080.1	1056.4	1046.0	1038.6
40°	1040.2	1028.3	1004.5	991.3	985.3
42.5°	988.3	976.4	952.8	937.8	929.0
45°	932.0	921.7	899.3	883.2	877.1
47.5°	877.1	866.8	843.1	826.7	817.9
50°	819.3	812.0	791.2	770.5	763.0
52.5°	763.0	752.6	733.5	717.2	706.8
55°	705.4	696.4	678.6	660.8	653.5
57.5°	647.5	640.1	620.8	603.0	597.0
60°	589.6	583.9	563.1	546.7	542.4
62.5°	533.4	523.0	508.2	493.4	487.5
65°	475.7	466.7	451.9	438.6	431.2
67.5°	416.4	408.9	395.7	385.3	379.3
70°	361.5	355.6	342.2	331.8	326.1
72.5°	305.3	299.3	291.9	281.6	277.1
75°	248.8	246.0	238.5	229.7	232.7
77.5°	198.6	192.5	189.6	185.2	180.8
80°	148.3	146.7	143.7	139.3	136.3
82.5°	100.7	100.7	99.3	93.4	93.4
85°	60.7	59.2	57.8	53.3	51.9
87.5°	26.7	23.8	20.8	16.3	14.8
90°	0.7	9.3	15.4	19.4	20.8
92.5°	19.4	16.2	18.5	20.1	20.8
95°	50.2	24.7	30.1	34.1	33.3
97.5°	90.5	27.1	39.4	41.8	42.5
100°	136.9	31.0	44.1	50.2	51.8
102.5°	187.9	186.5	45.6	54.1	56.5
105°	235.1	258.4	47.2	55.7	58.8
107.5°	290.1	309.4	48.8	57.3	60.4
110°	342.8	358.9	135.4	58.1	61.1



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	392.3	406.1	393.0	59.6	61.9
115°	444.8	457.9	477.3	119.1	63.5
117.5°	490.5	505.9	519.2	408.4	205.8
120°	541.6	553.1	567.1	576.4	472.0
122.5°	584.8	597.2	612.8	617.4	618.2
125°	628.9	639.1	653.7	659.2	661.5
127.5°	669.2	680.0	691.7	699.4	700.1
130°	707.1	719.5	727.9	736.5	735.8
132.5°	745.7	755.9	764.4	771.3	770.6
135°	778.3	790.7	797.6	805.4	803.9
137.5°	812.3	821.5	829.4	837.1	834.8
140°	845.5	851.8	860.3	867.2	863.4
142.5°	873.5	878.9	888.9	895.0	891.2
145°	902.9	902.1	915.2	920.6	916.7
147.5°	928.3	926.0	939.2	943.0	940.0
150°	953.1	947.7	960.1	964.7	960.9
152.5°	974.0	967.8	979.4	984.1	978.7
155°	994.1	987.2	996.5	1001.1	994.9
157.5°	1010.4	1004.2	1011.2	1016.6	1010.4
160°	1024.3	1019.6	1024.3	1028.9	1023.5
162.5°	1036.6	1032.1	1035.9	1041.3	1034.4
165°	1047.5	1042.9	1045.2	1050.6	1045.2
167.5°	1056.1	1051.3	1053.8	1059.1	1052.2
170°	1063.0	1058.3	1059.9	1065.3	1058.3
172.5°	1067.6	1063.0	1064.6	1070.0	1063.0
175°	1071.4	1066.0	1067.6	1073.0	1065.3
177.5°	1073.0	1067.6	1068.4	1073.9	1066.9
180°	1069.2	1069.2	1069.2	1069.2	1069.2



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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	8.25	9.16	9.15	10.09	11.28	7.81	8.73	8.72	9.65	10.84
	3H	9.91	10.73	10.83	11.67	12.88	9.44	10.26	10.36	11.19	12.41
	4H	10.50	11.28	11.44	12.22	13.44	10.03	10.80	10.96	11.74	12.97
	6H	10.91	11.62	11.85	12.57	13.80	10.43	11.14	11.38	12.09	13.33
	8H	11.01	11.69	11.96	12.66	13.89	10.54	11.22	11.49	12.18	13.42
	12H	11.06	11.71	12.02	12.67	13.93	10.58	11.23	11.54	12.19	13.45
4H	2H	8.71	9.49	9.65	10.43	11.65	8.37	9.15	9.31	10.09	11.31
	3H	10.59	11.23	11.54	12.21	13.44	10.19	10.84	11.14	11.81	13.05
	4H	11.30	11.89	12.26	12.86	14.12	10.90	11.49	11.86	12.45	13.72
	6H	11.82	12.33	12.80	13.32	14.58	11.41	11.92	12.39	12.91	14.17
	8H	11.97	12.45	12.95	13.43	14.71	11.56	12.04	12.54	13.02	14.30
	12H	12.05	12.48	13.04	13.48	14.76	11.63	12.06	12.62	13.06	14.34
8H	4H	11.51	11.98	12.48	12.96	14.24	11.14	11.62	12.12	12.60	13.88
	6H	12.14	12.53	13.14	13.56	14.83	11.78	12.17	12.78	13.20	14.47
	8H	12.36	12.71	13.37	13.72	15.01	11.99	12.34	13.00	13.35	14.65
	12H	12.50	12.80	13.51	13.81	15.15	12.11	12.42	13.12	13.43	14.76
12H	4H	11.49	11.92	12.49	12.92	14.20	11.14	11.57	12.14	12.57	13.85
	6H	12.17	12.52	13.18	13.53	14.82	11.82	12.17	12.83	13.18	14.47
	8H	12.42	12.72	13.43	13.73	15.07	12.06	12.37	13.07	13.37	14.71