

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: P916102

Luminaire Tested: DFN2DIP-HX2F0-040D030US930-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P916102  
REPORT IS A COMBINATION OF REPORTS P899165 AND P896039  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX2F0-040D030US930-FLLFLL  
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

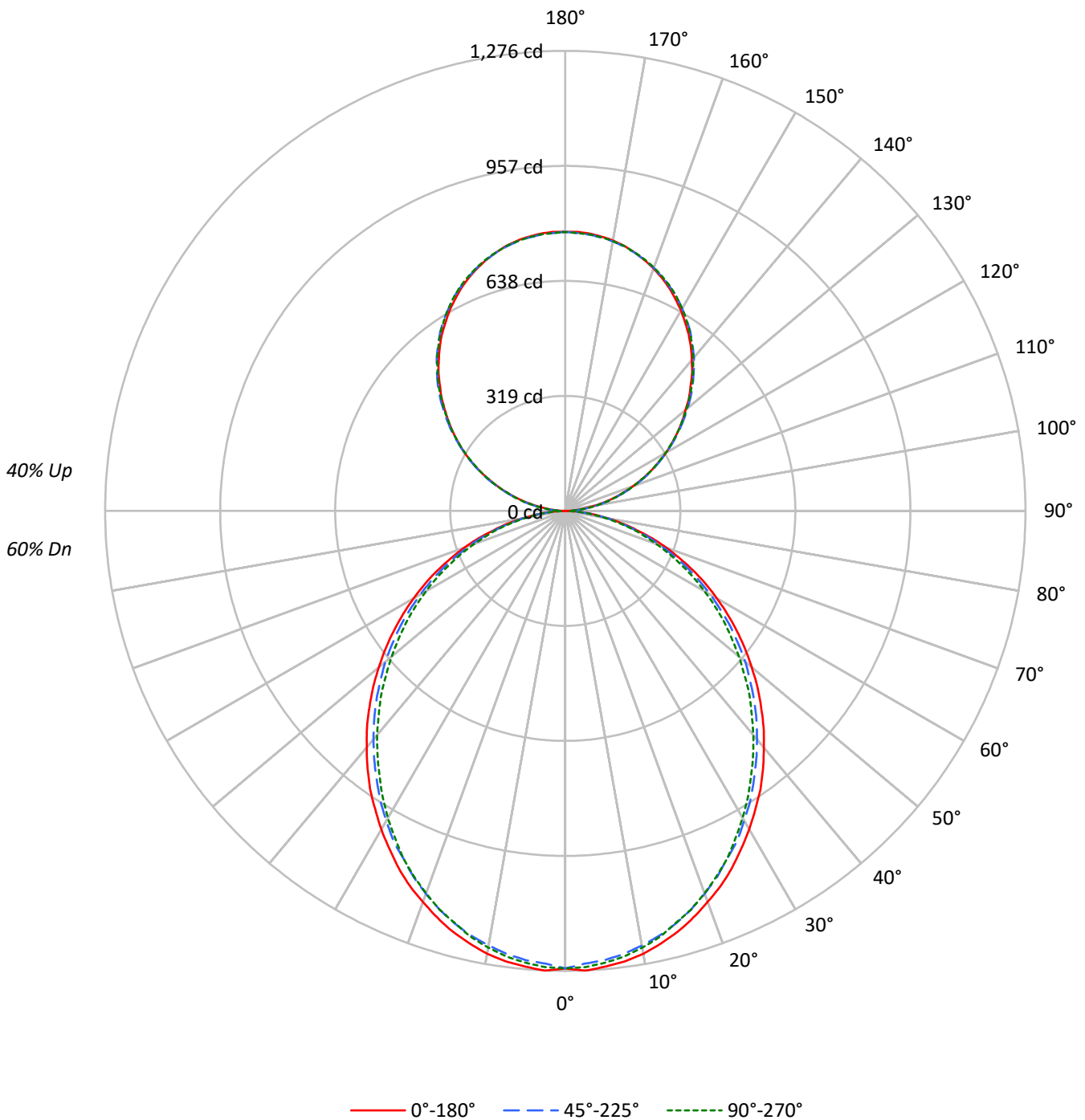
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5393.2 lumens  
Efficiency: N/A  
Efficacy: 93.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 57.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9933  
Total Harmonic Distortion (THDi): 0.066  
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	50	30	10
RCR																				
0	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65	60		
1	100	96	92	88	93	89	86	83	78	75	73	67	66	64	58	56	55	50		
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	48	46	42		
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40	36		
4	76	65	57	51	71	61	54	48	54	48	43	47	42	39	40	37	34	31		
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30	27		
6	64	52	44	38	60	49	42	36	43	37	33	38	33	29	33	29	26	23		
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23	21		
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21	19		
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19	17		
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17	15		

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

	0°	45°	90°
0°	2990	2990	2990
5°	2990	2941	2963
10°	2961	2894	2917
15°	2912	2840	2849
20°	2849	2766	2779
25°	2785	2680	2700
30°	2707	2600	2600
35°	2633	2505	2495
40°	2542	2410	2395
45°	2451	2314	2292
50°	2351	2213	2173
55°	2247	2097	2063
60°	2128	1960	1936
65°	1998	1817	1787
70°	1832	1642	1625
75°	1605	1433	1469
80°	1329	1166	1186
85°	903	732	733

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2451 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	119.4	2.2
10°-20°	336.0	6.2
20°-30°	493.8	9.2
30°-40°	573.6	10.6
40°-50°	572.9	10.6
50°-60°	499.5	9.3
60°-70°	369.3	6.8
70°-80°	208.9	3.9
80°-90°	57.3	1.1
90°-100°	47.9	0.9
100°-110°	152.1	2.8
110°-120°	260.3	4.8
120°-130°	342.3	6.3
130°-140°	384.2	7.1
140°-150°	376.8	7.0
150°-160°	316.1	5.9
160°-170°	209.6	3.9
170°-180°	73.3	1.4
0°-30°	949.3	17.6
0°-40°	1522.9	28.2
0°-60°	2595.3	48.1
0°-90°	3230.8	59.9
90°-120°	460.2	8.5
90°-150°	1563.5	29.0
90°-180°	2162.0	40.1
0°-180°	5393.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1269	1269	1269	1269	1269	
5°	1269	1264	1251	1260	1258	120
15°	1208	1201	1185	1190	1184	340
25°	1093	1084	1063	1065	1063	503
35°	943	931	912	904	898	589
45°	768	759	741	727	722	592
55°	581	574	559	544	538	519
65°	392	384	372	361	355	387
75°	205	203	196	189	192	219
85°	50	49	48	44	43	56
90°	1	8	23	21	22	5
95°	34	41	42	42	41	38
105°	140	142	144	145	145	148
115°	261	265	264	263	261	258
125°	380	386	384	382	381	339
135°	491	499	500	499	497	380
145°	597	601	605	606	603	373
155°	682	684	686	689	687	314
165°	742	741	741	746	743	209
175°	772	770	769	774	770	73
180°	774	774	774	774	774	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1268.9	1268.9	1268.9	1268.9	1268.9
2.5°	1276.3	1270.2	1256.8	1268.9	1266.6
5°	1268.9	1264.1	1250.7	1260.4	1258.1
7.5°	1260.4	1253.1	1239.7	1249.5	1247.1
10°	1247.1	1238.5	1223.9	1233.6	1230.0
12.5°	1228.7	1221.4	1206.8	1212.9	1210.4
15°	1207.9	1200.7	1184.8	1189.7	1183.6
17.5°	1182.3	1175.1	1159.2	1165.2	1159.2
20°	1154.2	1147.0	1129.9	1133.5	1128.8
22.5°	1126.3	1115.2	1099.3	1099.3	1096.9
25°	1093.2	1083.5	1062.8	1065.2	1062.8
27.5°	1056.6	1048.1	1032.3	1028.7	1022.6
30°	1020.1	1010.3	992.1	988.4	983.5
32.5°	981.0	973.8	954.2	946.9	941.9
35°	943.2	931.1	911.5	904.2	898.1
37.5°	900.5	889.5	869.9	861.4	855.3
40°	856.6	846.8	827.2	816.4	811.5
42.5°	813.9	804.0	784.6	772.3	765.1
45°	767.5	759.0	740.6	727.3	722.4
47.5°	722.4	713.8	694.3	680.9	673.6
50°	674.7	668.6	651.6	634.5	628.4
52.5°	628.4	619.9	604.1	590.6	582.0
55°	580.9	573.5	558.9	544.2	538.2
57.5°	533.2	527.2	511.2	496.6	491.7
60°	485.6	480.8	463.7	450.3	446.6
62.5°	439.3	430.7	418.6	406.3	401.5
65°	391.8	384.3	372.2	361.2	355.1
67.5°	342.9	336.7	325.9	317.3	312.4
70°	297.7	292.9	281.8	273.3	268.5
72.5°	251.4	246.5	240.4	231.9	228.2
75°	205.0	202.6	196.4	189.1	191.6
77.5°	163.5	158.6	156.1	152.5	148.9
80°	122.1	120.7	118.3	114.7	112.3
82.5°	83.0	83.0	81.9	76.9	76.9
85°	50.0	48.8	47.6	43.9	42.7
87.5°	22.0	19.6	17.1	13.5	12.1
90°	0.7	8.4	22.8	21.4	22.2
92.5°	14.4	19.6	20.3	21.0	21.0
95°	34.1	40.6	41.7	41.7	40.6
97.5°	56.7	62.7	65.3	65.3	65.3
100°	82.8	88.1	90.0	90.0	89.4
102.5°	110.3	114.3	116.8	117.6	116.8
105°	140.4	142.3	143.7	144.8	144.8
107.5°	170.2	173.0	173.0	173.5	170.2
110°	199.2	202.9	202.9	202.9	201.1



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	230.4	234.4	233.7	231.8	230.4
115°	261.2	264.9	263.7	263.1	261.2
117.5°	291.7	296.9	293.6	291.7	289.8
120°	322.5	327.7	322.5	322.5	320.4
122.5°	350.5	357.0	353.8	351.9	350.5
125°	379.9	385.7	383.8	381.7	381.1
127.5°	408.5	415.8	413.3	410.4	408.5
130°	435.4	443.8	442.6	441.2	438.6
132.5°	465.5	472.0	472.5	469.2	467.3
135°	491.4	498.6	500.0	499.3	497.4
137.5°	520.2	526.1	527.3	526.8	524.0
140°	545.7	551.5	554.8	554.8	552.2
142.5°	571.9	577.6	579.5	580.2	577.6
145°	596.6	601.2	605.0	605.6	603.1
147.5°	618.7	624.5	627.3	628.5	625.9
150°	641.6	645.6	648.1	650.2	648.1
152.5°	661.9	665.8	669.0	671.6	669.0
155°	682.2	684.0	686.1	689.3	687.3
157.5°	699.6	701.0	702.2	706.9	703.6
160°	715.3	716.6	717.4	721.3	718.5
162.5°	729.7	729.7	730.4	734.8	731.6
165°	742.1	741.4	741.4	746.0	742.7
167.5°	753.3	751.1	751.1	755.8	752.5
170°	761.7	759.8	759.1	763.8	759.8
172.5°	767.4	765.6	764.9	769.6	765.6
175°	772.2	770.3	768.9	773.6	769.6
177.5°	774.7	772.8	771.4	775.4	771.4
180°	773.6	773.6	773.6	773.6	773.6



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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	11.81	12.76	12.67	13.65	14.78	11.38	12.34	12.25	13.23	14.35
	3H	13.45	14.31	14.33	15.21	16.35	12.99	13.85	13.87	14.75	15.89
	4H	14.02	14.84	14.92	15.74	16.90	13.56	14.38	14.46	15.28	16.44
	6H	14.41	15.16	15.32	16.07	17.24	13.95	14.70	14.86	15.61	16.78
	8H	14.51	15.22	15.42	16.15	17.32	14.05	14.76	14.96	15.69	16.86
	12H	14.55	15.23	15.47	16.15	17.35	14.09	14.77	15.01	15.69	16.89
4H	2H	12.27	13.08	13.17	13.99	15.14	11.93	12.74	12.83	13.65	14.81
	3H	14.12	14.79	15.03	15.73	16.90	13.73	14.41	14.64	15.35	16.52
	4H	14.81	15.43	15.74	16.36	17.56	14.42	15.04	15.34	15.97	17.17
	6H	15.31	15.85	16.25	16.80	18.00	14.92	15.45	15.85	16.40	17.60
	8H	15.45	15.95	16.39	16.90	18.11	15.05	15.55	15.99	16.50	17.71
	12H	15.52	15.97	16.47	16.93	18.15	15.11	15.56	16.07	16.53	17.75
8H	4H	15.01	15.51	15.95	16.45	17.67	14.66	15.16	15.59	16.10	17.32
	6H	15.61	16.03	16.58	17.02	18.23	15.26	15.68	16.23	16.67	17.88
	8H	15.82	16.18	16.79	17.16	18.39	15.46	15.83	16.44	16.81	18.04
	12H	15.94	16.26	16.91	17.23	18.51	15.57	15.89	16.55	16.86	18.14
12H	4H	14.99	15.45	15.95	16.41	17.63	14.65	15.10	15.61	16.07	17.29
	6H	15.64	16.00	16.61	16.98	18.21	15.30	15.66	16.27	16.64	17.87
	8H	15.87	16.19	16.84	17.16	18.44	15.52	15.84	16.50	16.82	18.09