

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: P916110

Luminaire Tested: DFN2DIP-HX2F0-040D050US930-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P916110  
REPORT IS A COMBINATION OF REPORTS P899185 AND P896039  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX2F0-040D050US930-FLLFLL  
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

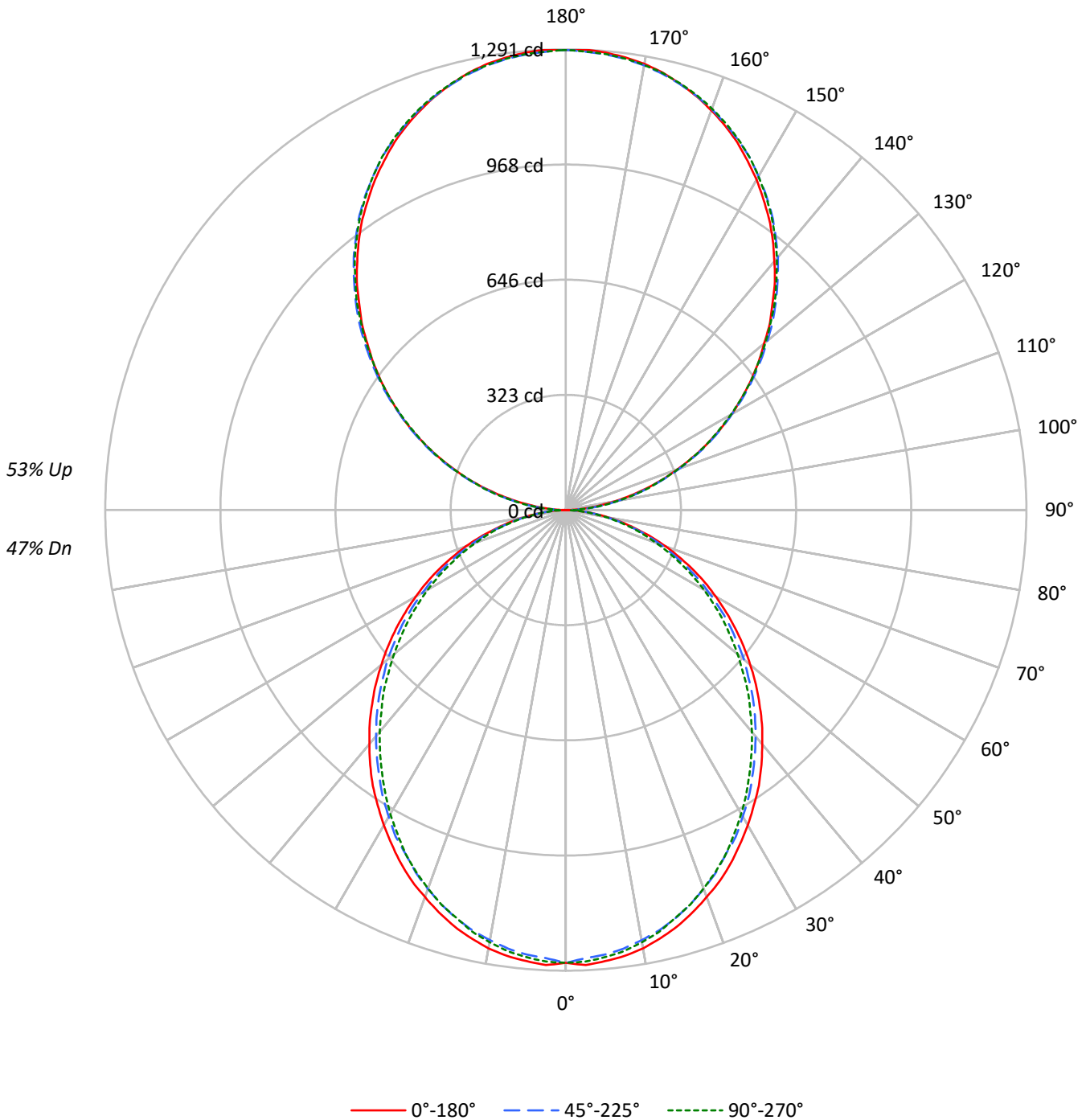
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6836.3 lumens  
Efficiency: N/A  
Efficacy: 91.8 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): 74.5  
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	0
RCR																					
0	106	106	106	106	98	98	98	98	82	82	82	67	67	67	54	54	54	47	47	47	47
1	97	93	89	85	89	85	82	79	72	69	67	59	57	56	47	46	45	40	40	40	40
2	88	81	75	70	81	75	69	65	63	59	56	52	49	47	42	40	38	33	33	33	33
3	81	71	64	58	74	66	59	54	55	51	47	46	42	39	37	35	32	28	28	28	28
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	33	30	28	24	24	24	24
5	68	56	48	42	62	52	45	39	44	39	34	37	33	29	30	27	24	21	21	21	21
6	62	50	42	37	57	47	40	34	40	34	30	33	29	26	27	24	21	19	19	19	19
7	58	45	38	32	53	42	35	30	36	30	26	30	26	23	25	21	19	16	16	16	16
8	54	41	34	28	49	38	31	27	33	27	23	28	23	20	23	19	17	15	15	15	15
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15	13	13	13	13
10	47	35	27	23	43	32	26	21	28	22	19	23	19	16	19	16	14	12	12	12	12

**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	1.7
10°-20°	336.0	4.9
20°-30°	493.8	7.2
30°-40°	573.6	8.4
40°-50°	572.9	8.4
50°-60°	499.5	7.3
60°-70°	369.3	5.4
70°-80°	208.9	3.1
80°-90°	58.8	0.9
90°-100°	79.8	1.2
100°-110°	253.5	3.7
110°-120°	433.8	6.3
120°-130°	570.5	8.3
130°-140°	640.4	9.4
140°-150°	627.9	9.2
150°-160°	526.8	7.7
160°-170°	349.3	5.1
170°-180°	122.1	1.8
0°-30°	949.3	13.9
0°-40°	1522.9	22.3
0°-60°	2595.3	38.0
0°-90°	3232.2	47.3
90°-120°	767.0	11.2
90°-150°	2605.8	38.1
90°-180°	3604.0	52.7
0°-180°	6836.3	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	14	38	36	37	7
95°	57	68	70	70	68	63
105°	234	237	240	241	241	247
115°	435	442	440	438	435	431
125°	633	643	640	636	635	566
135°	819	831	833	832	829	633
145°	994	1002	1008	1009	1005	621
155°	1137	1140	1144	1149	1145	523
165°	1237	1236	1236	1243	1238	349
175°	1287	1284	1282	1289	1283	122
180°	1289	1289	1289	1289	1289	



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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°	1.1	14.0	38.1	35.8	36.9
92.5°	24.1	32.6	33.8	35.0	35.0
95°	56.7	67.7	69.5	69.5	67.7
97.5°	94.4	104.5	108.8	108.8	108.8
100°	137.9	146.9	150.0	150.0	148.9
102.5°	183.8	190.5	194.7	195.9	194.7
105°	234.0	237.1	239.5	241.3	241.3
107.5°	283.7	288.4	288.4	289.2	283.7
110°	331.9	338.2	338.2	338.2	335.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	384.0	390.6	389.5	386.4	384.0
115°	435.3	441.6	439.6	438.5	435.3
117.5°	486.2	494.8	489.3	486.2	483.1
120°	537.5	546.1	537.5	537.5	534.0
122.5°	584.2	595.1	589.6	586.5	584.2
125°	633.2	642.9	639.8	636.3	635.1
127.5°	680.9	693.0	688.8	684.0	680.9
130°	725.7	739.6	737.7	735.4	731.1
132.5°	775.8	786.7	787.5	782.0	778.9
135°	819.0	831.0	833.3	832.2	829.1
137.5°	867.2	876.9	878.8	878.0	873.3
140°	909.5	919.2	924.6	924.6	920.4
142.5°	953.0	962.8	965.9	967.0	962.8
145°	994.3	1002.0	1008.2	1009.4	1005.1
147.5°	1031.2	1040.9	1045.5	1047.5	1043.2
150°	1069.3	1075.9	1080.1	1083.6	1080.1
152.5°	1103.1	1109.7	1115.1	1119.4	1115.1
155°	1136.9	1140.0	1143.5	1148.9	1145.4
157.5°	1166.0	1168.3	1170.3	1178.1	1172.6
160°	1192.0	1194.4	1195.6	1202.2	1197.5
162.5°	1216.2	1216.2	1217.3	1224.7	1219.3
165°	1236.8	1235.6	1235.6	1243.4	1237.9
167.5°	1255.4	1251.9	1251.9	1259.7	1254.3
170°	1269.4	1266.3	1265.2	1272.9	1266.3
172.5°	1279.1	1276.0	1274.9	1282.6	1276.0
175°	1286.9	1283.8	1281.5	1289.2	1282.6
177.5°	1291.2	1288.1	1285.7	1292.3	1285.7
180°	1289.2	1289.2	1289.2	1289.2	1289.2



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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	10.68	11.52	11.66	12.51	13.82	10.26	11.10	11.24	12.09	13.40
	3H	12.32	13.07	13.31	14.07	15.40	11.85	12.61	12.85	13.61	14.94
	4H	12.89	13.60	13.89	14.60	15.94	12.43	13.14	13.43	14.14	15.48
	6H	13.26	13.92	14.28	14.93	16.28	12.80	13.46	13.82	14.47	15.82
	8H	13.36	13.98	14.38	15.01	16.36	12.90	13.52	13.92	14.55	15.90
	12H	13.40	13.99	14.42	15.01	16.38	12.93	13.53	13.96	14.55	15.92
4H	2H	11.13	11.84	12.14	12.85	14.19	10.79	11.50	11.80	12.51	13.85
	3H	12.97	13.56	13.98	14.59	15.95	12.58	13.18	13.60	14.21	15.56
	4H	13.66	14.20	14.69	15.23	16.60	13.26	13.81	14.29	14.83	16.21
	6H	14.15	14.62	15.19	15.67	17.04	13.75	14.22	14.79	15.27	16.64
	8H	14.29	14.72	15.32	15.77	17.15	13.89	14.33	14.93	15.37	16.76
	12H	14.35	14.74	15.40	15.80	17.19	13.94	14.34	15.00	15.39	16.79
8H	4H	13.84	14.28	14.88	15.32	16.71	13.49	13.93	14.53	14.97	16.36
	6H	14.44	14.80	15.50	15.89	17.27	14.09	14.45	15.15	15.54	16.92
	8H	14.65	14.96	15.72	16.03	17.44	14.29	14.61	15.36	15.68	17.08
	12H	14.76	15.04	15.83	16.10	17.55	14.39	14.67	15.47	15.74	17.18
12H	4H	13.82	14.22	14.88	15.28	16.67	13.48	13.88	14.54	14.93	16.32
	6H	14.47	14.79	15.54	15.85	17.26	14.13	14.44	15.20	15.51	16.92
	8H	14.69	14.97	15.76	16.03	17.48	14.34	14.62	15.42	15.69	17.13